Using

Zacks Link

Version 4.0.305

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Overview

What is Zacks Link

Zacks Link (ZL) is a Windows-based application designed to retrieve Zacks proprietary database items and place them in Microsoft Excel spreadsheets. The application provides various user interfaces to select database items easily and point where on the spreadsheet those items are to be placed. Once data is on the spreadsheet, you can utilize the power of Excel to format, chart, and even automate (via user-designed macros) Excel reports.

ZL provides several dozen pre-defined, preformatted reports. However, the real power of ZL is its flexibility to create customized reports. These reports can be created by customizing standard, pre-defined reports, or by creating reports from scratch.

To fully use the power of ZL, you should be familiar with Zacks databases and items available in these databases (See the Zacks Database Appendix manual).

How Zacks Link Works

The tasks of generating both the front-end user interface and linking data with Zacks databases are performed by custom Microsoft Excel macros (VBA Programming Code). These macros place Zacks Link formulas (functions) in spreadsheet cells. These Excel-like functions call other functions to make the data appear on the spreadsheets. These other functions exist in Zacks Dynamic Link Library (DLL) files and are what actually retrieves data from Zacks proprietary databases (.dbs files).

Zacks Link Version 4.0.305

Zacks Link 4.305 (formerly Excel Link) is a full 32-bit application, utilizing the power of Microsoft Excel 97 or higher and the 32-bit environment of the Windows 95/98/NT/2000 operating system. Here is a summary of its features:

- Configurable to retrieve data from Zacks databases via the Internet or from local Zacks databases.

- Custom Zacks Dynamic Link Libraries (DLL) specially designed for Zacks Link, accurate data retrieval. It is possible to retrieve more than 50,000 data points reliably (i.e. without false N/A values).
- A Zacks Link worksheet formula (functions) allows for full referencing of other cell contents. The functions behave like regular Excel functions. Within each function, you can REFERENCE other cells that contain the database name, ticker, item number, date, and type of data instead of hard-coding these parameters within each function. This allows mid to high-level MS Excel users to ultimately benefit from this flexibility.
- User-friendly interface makes it easier for create Single Cell, Time Series, and Multi-Company (with new Wizard) reports.
- Screening capability when recalling screen definitions created using Research Wizard.
- Database item and company ticker search.
- Calculation Expression builder for building custom formulas via user interface.
- Includes "virtual Items" or “on-the-fly” calculations from the DBCM database (Item #s 500 and higher), which are calculated expressions of the database items.
- Can specify a different ticker for each spreadsheet within an Excel workbook (Single-company reports). Can also specify a different ticker list for each spreadsheet (Multi-company reports).
- Database item list categorized for easier access. Also included item search feature.

System Requirements

Software: Zacks Link requires Microsoft Excel 97 or higher and Windows 95/98/NT/2000 operating system. If you use online help, a web browser such as Netscape Navigator 4.0 or Microsoft Windows Explorer 4.0 is required.

Hardware: The computer system should have a Pentium processor with 16 MB RAM, 32 MB preferred. The hard drive (or network drive) should have at least 20 MB available for ZL installation. More disk space is required for user-designed custom reports. If ZL is configured as an Internet-only product, a connection to the Internet is required via either a network connection or modem.

Notations/Terminology

Zacks Link (mnemonic: ZL)**:** The “link” actually refer to the formulas or functions that are placed in the spreadsheet cells. This link provides the means to retrieve data from Zacks databases. The most common “link” or formula is “=Zacks(…)”. Throughout this manual, the term: “Zacks links” or “Zacks Link formulas” or “ZL formulas” refers to these formulas. Also, you must be aware that the Excel application itself uses the term, “links” to

specify an Excel worksheet formula that includes links to another worksheet or file. These links have little to do with Zacks link (links to Zacks databases). See "Appendix D – Zacks Links Vs Excel's Links" for more information on links.

Local vs Internet Mode: ZL can retrieve data by linking to local databases (within a hard/network drive) or by downloading from the Internet. This User's Manual specifies issues related to local databases with a **LOCAL MODE:** notation, and to Internet downloading with an **INTERNET MODE:** notation.

Getting Started

Zacks Link Installation

Web-based

Install the latest application from Zacks' Professional Services web-site (contact Zacks representative for URL address). One of the options of installing is with InstallShield's™ *InstallFromTheWeb*™ software. Another option is using the usual "download and run" method where you will download an executable file and run the installation. Please read the instructions on the website. Close all Windows programs, as the installation is much smoother this way. Follow the instructions in the installation program. At the prompt for user name/password, enter the information provided by your Zacks Investment Research contact. Note the option to change the installation directory is not available, the program files will always be installed in the C:\Zir directory. For consistency, other complimentary programs can be installed in the same directory.

CD-ROM

Installing from a CD-ROM is straightforward. Follow the installation instructions. The process is similar to past Zacks Research Systems (ZRS) installations. The option to select a different installation directory, other than the default c:\Zacks directory, is available.

Starting Zacks Link

Selecting the Zacks Link icon from the Start menu runs ZL. Select an icon by, clicking **Start→Programs→<Zacks Link Program Folder>→Zacks Link**. Microsoft Excel starts up with the additional Zacks pull-down menu at the end of the menu bar. Figure 1A displays the available Zacks menu items from the Excel application window.

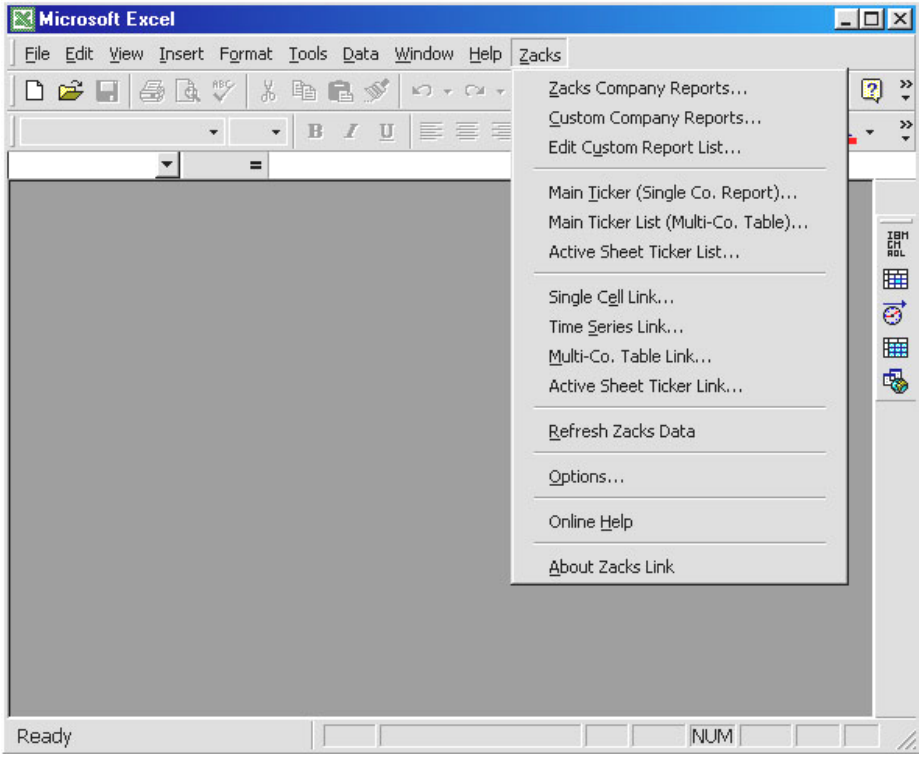


Figure 1A – Zacks Link Main Interface

The ZL main menu is a toolbar with five or six icons located to the right of the application window. These toolbar icons represent some of the more frequently used menu items. Scrolling the cursor over these icons describe the menu items they represent.

Figure 1A displays the available **LOCAL MODE**. The *Refresh Zacks Data (Local)* menu is not available in **INTERNET MODE**.

Creating A Custom Report

To get a first-time user familiar with how easy it is to create a report, follow these steps to creating a single company. The following example uses the **INTERNET MODE**.

1. Start the Zacks Link application, as described in the Zacks Link Installation section above.
2. Open a new **Excel** workbook (open File then *New*) if a blank workbook is not already open.
3. Open Zacks menu then click *Single Cell Link*. The **Zacks Cell Link** Dialogue Box appears as shown in Figure 1B.

   Select the Cell Reference text box. After the last character in the box, select cell A3 on the spreadsheet (Move the menu to the side if necessary for better visibility). This is the data item's destination cell.
4. Select the database box (…). Select the **DBCM.DBL** (or **DBCM.DBS**) or database file. Select the *Refresh data immediately* checkbox. The main (default) ticker appears on the spreadsheet.

5. Select *Descriptive* in the **Item** box.Then click *3-Company Name* (item appears on spreadsheet cell A3).Select cell A4 on the spreadsheet.Click *1-Ticker* (item appears on spreadsheet cell A4).

6. Select spreadsheet cell A6.Select **Item Name** and **Date of Value** boxes.Select *Price and Price Changes* . Click *5-Current Price* (three items appear starting in cell A6).

7. Click **Close** from the **Zacks Cell Link** dialogue box.

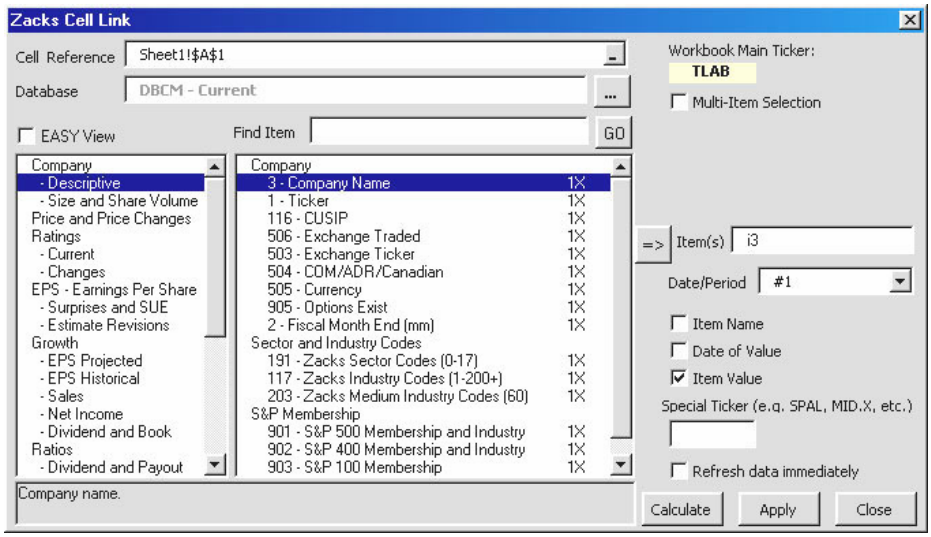


Figure 1B – Zacks Cell Link Dialogue Box

A simple report that includes the most recent price in the DBCM (Current Market) database is created for this company (See Figure 1C). For future use, you may save workbooks as any Excel workbook. When opening later, refresh the data to view the latest "Current Price" data. The report appearance can be enhanced for usability and presentations.

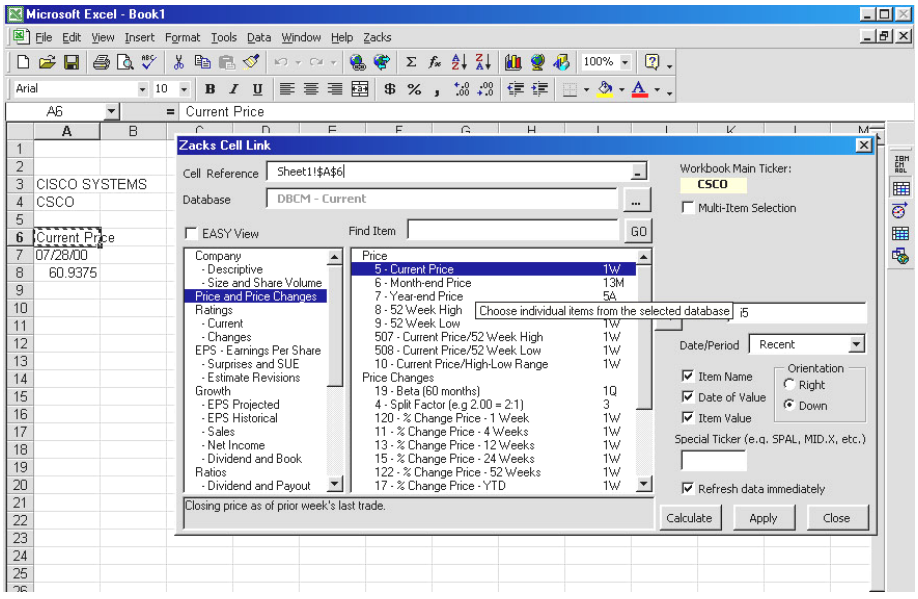


Figure 1C – Creating Simple Report

Local Mode vs. Internet Mode

To configure Zacks Link to **LOCAL MODE** or **INTERNET MODE**, please contact Zacks Technical Support for assistance.

LOCAL MODE: Zacks Link view of databases installed in computer hard/network drive. Local mode also allows downloading data via Internet. You do not need to be in the **INTERNET MODE** to do so.

INTERNET MODE: Zacks Link view of databases from Zacks company server via the Internet.

See the **Zacks Link Functional Menu Review** section's for more details on **Refresh Zacks Data (Local)** and **Refresh Zacks Data (Internet)**.

Although the application runs quicker using local databases, there are definite advantages to refreshing data via the Internet. Zacks databases requiring more frequent access than on a monthly basis (monthly CD-ROM), can download data by refreshing it while large amounts of space are not required of your hard-drive. Non-standard or custom database created cannot be updated via the Internet.

Zacks Link Functional Menu Review

Zacks Company Reports

The **Zacks Company Reports** allows users to display/print pre-formatted reports for a specified ticker.

When selecting this menu item, the **Zacks Company Reports** dialogue box appears.

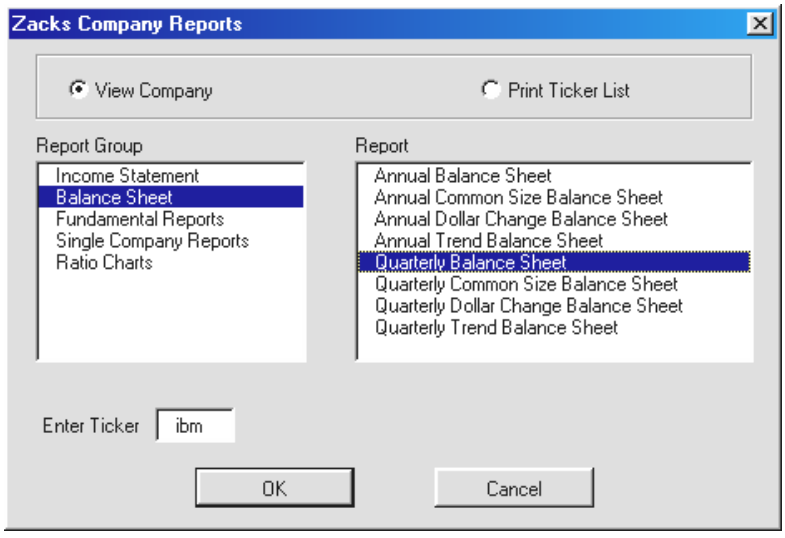


Figure 2 – Zacks Company Reports Dialogue Box

View Company: When selected, the **Enter Ticker** option is enabled. In this mode, the report opens with specified ticker for viewing only.

Print Ticker List: When selected, the **Enter Ticker** option is disabled. After selecting a report and clicking **OK**, a pre-defined ticker file must be choosen (as in Figure 16). Each ticker symbol and corresponding data is inserted into the report and printed.

Report Group: Lists available groups of reports. Each selection displays reports in its group within the **Report** box to the right.

Report: Lists available specific reports. To open, select a report then click **OK**.

Enter Ticker: Enter a desired ticker. The **View Company** option must be selected to enable ticker box. The ticker becomes the default for the rest of the application.

LOCAL MODE: After opening the report, the dialogue box closes with updated data on the spreadsheet.

INTERNET MODE: After opening the report, the dialogue box closes and automatically downloads data onto the spreadsheet.

These reports are opened in read-only mode. Any file modified and saved as another file name is considered a "Custom" report that can be run by opening directly or via the *Custom Company Report*s submenu.

Custom Company Reports

Similar to **Zacks Company Reports**, you may retrieve single-company reports. These reports are Excel files that have been customized.

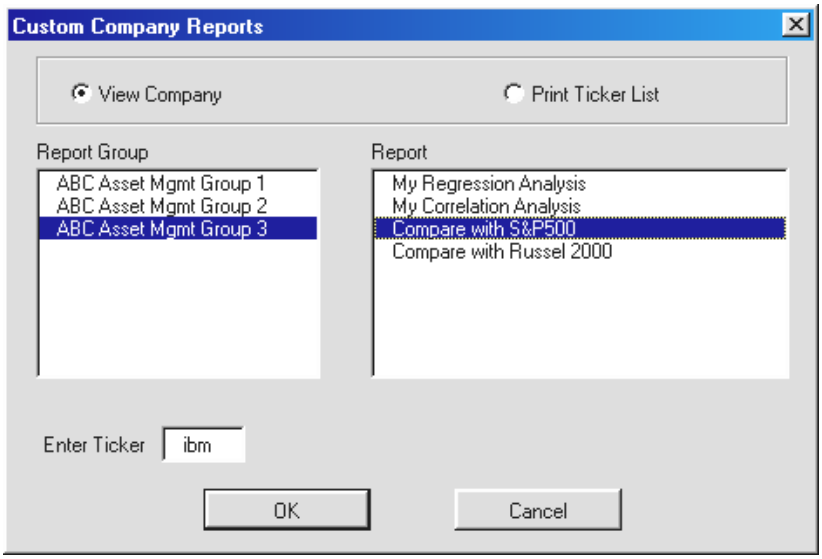


Figure 3 – Custom Company Reports Dialogue Box

View Company: When selected, the **Enter Ticker** option is enabled. In this mode, the report opens for viewing only.

Print Ticker List: When selected, the **Enter Ticker** option is disabled. After selecting a report and clicking **OK**, a pre-defined ticker file must be choosen (as in Figure 16). Each ticker symbol and corresponding data is inserted into the report and printed.

Report Group: Lists available groups of reports. Each selection displays reports in its group within the **Report** box to the right.

Report: Lists available specific reports. To open a report, select a report then click **OK.**

Enter Ticker: Enter a ticker. The **View Company** option must be selected to enable the ticker box. The ticker becomes the default ticker for the rest of the application.

LOCAL MODE: After opening a report, the dialogue box closes with updated data on the spreadsheet.

INTERNET MODE: After opening a report, the dialogue box closes and automatically downloads data via Internet onto the spreadsheet.

Reports do not need to be displayed within the dialogue box to open. Any Zacks Link report (workbook files) can be opened directly via Excel. The **Custom Reports** dialogue box is enabled to allow quick retrieval of pre-formatted infrequently modified reports that are periodically used. It is recommended, an experienced administrator is responsible for placing these reports in this dialogue box. The administrator must use the *Edit Custom Report List* submenu item.

Edit Custom Report List

Selecting this menu item opens a text file within Excel (Figure 4) to allow a user (preferably an administrator of Zacks Link) to include custom reports within the **Custom Company Reports** dialogue box. A file named **Xlcusrpt.txt** is opened in ZL for editing as shown in Figure 4.

	A	B	C	D	E	F
1	(Report/Group name)	Id	File			
2						
3	ABC Asset Mgmt Group 1	100				
4	Earnings Analysis	101	C:\Zacks\Res\EarningsAnalysis.xls			
5	Modified Balance Sheet	102	C:\Zacks\Res\Balance Sheet-Modified.xls			
6	Test Report 1	103	C:\Zacks\Res\test1.xls			
7						
8	ABC Asset Mgmt Group 2	200				
9	Consensus Recs - Modified	201	C:\Zacks\Res\Consensus-Mod.xls			
10	Modified Balance Sheet 2	202	C:\Zacks\Res\Balance Sheet-Modified.xls			
11						
12	ABC Asset Mgmt Group 3	300				
13	My Regression Analysis	301	C:\Zacks\Res\Regression.xls			
14	My Correlation Analysis	302	C:\Zacks\Res\Correlation.xls			
15	Compare with S&P500	303	C:\Zacks\Res\SP500-Compare.xls			
16	Compare with Russel 2000	304	C:\Zacks\Res\Russel2000-Compare.xls			
17						

Figure 4 – Edit Custom Report List file (Xlcusrpt.txt)

Report/Group Name: Enter any group/report name in this column.

Id: Enter a numerical ID beginning with 100. Groups must end with two zeroes. Reports must end with any two digits other than two zeroes.

Reports under a particular group must start with the same digit (e.g. 304 would be part of group 300). All Ids' must be unique. Refer to Figure 4 for an example.

Saving/Closing File: Excel does not recognize this as an *.xls file, it will not automatically save the file in its current location. It enables the **Save As**

dialogue box. Click the *Options* submenu and look for the **Custom Reports List** box. The file path in this box is where the **Xlcusrpt.txt** file must be stored.

How to Open

Open the File menu then select **Save As**. In the **Save As** dialogue box, go to the location as shown in the **Custom Reports List** box of the **Options** submenu. Do not change the name of the file and click **SAVE**. If an alert message in either Figure 5a or 5b appears, click Yes.

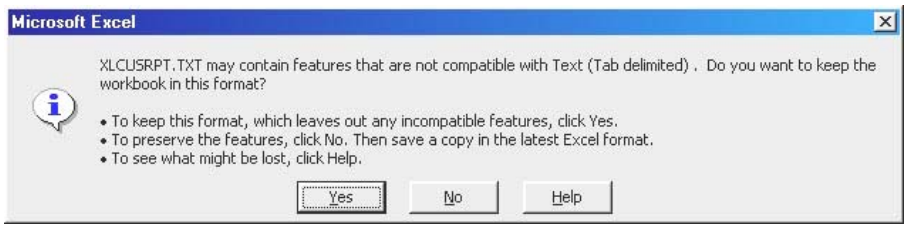

Microsoft Excel
XLCUSRPT.TXT may contain features that are not compatible with Text (Tab delimited) . Do you want to keep the workbook in this format?
• To keep this format, which leaves out any incompatible features, click Yes.
• To preserve the features, click No. Then save a copy in the latest Excel format.
• To see what might be lost, click Help.
Yes
No
Help

Figure 5a – Alert Message when Closing Xlcusrpt.txt File

It's OK to replace the existing file. Close the file. When the alert message shows in Figure 5, click on No (it was already saved in the previous step).

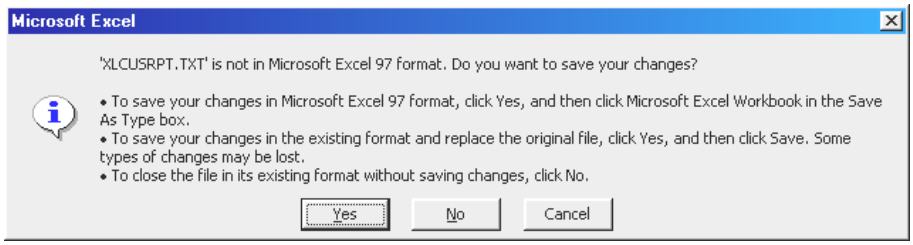

Microsoft Excel
'XLCUSRPT.TXT' is not in Microsoft Excel 97 format. Do you want to save your changes?
• To save your changes in Microsoft Excel 97 format, click Yes, and then click Microsoft Excel Workbook in the Save As Type box.
• To save your changes in the existing format and replace the original file, click Yes, and then click Save. Some types of changes may be lost.
• To close the file in its existing format without saving changes, click No.
Yes
No
Cancel

Figure 5b – Alert Message when Closing Xlcusrpt.txt File

Single Cell Link

Single Cell Link allows users to design a report one cell at a time. Users can select a database and item related options to insert data links to the spreadsheet. It is mainly intended to create reports that do not have a significant time-span or have a lot of companies.

When selecting this menu item, the **Zacks Cell Link** dialogue box appears as shown in Figure 6.

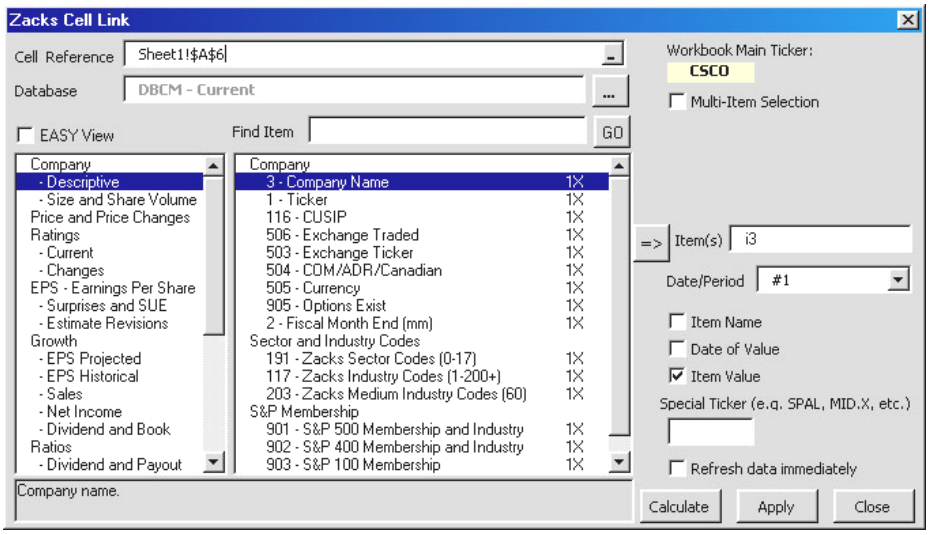


Figure 6 – Zacks Cell Link Dialogue Box

Workbook Main Ticker: An unchangeable information box displaying the current ticker used when inserting the data items. This ticker can be changed after closing the menu and selecting either *Main Ticker (Single Co. Report).* or *Active Sheet Ticker Link* from the main menu. The Workbook Main Tticker is the default ticker or the last ticker used.

Cell Reference: When clicked select any cell in the spreadsheet, the box is updated with the exact reference to the cell. Designates exactly where you would like to insert database data. For more information on this box, see Appendix C – The Cell Reference Box.

Database: Identifys the desired Zacks database.

LOCAL MODE: Clicking the small gray box ... opens the standard Windows **Open** dialogue box.

INTERNET MODE: Clicking the small gray box ... opens the database selection box as shown in Figure 7.

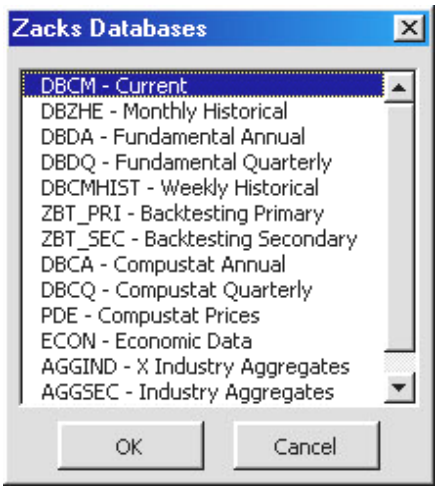


Figure 7 – Zacks Database Selection Box

If a database was selected in another menu, the Database box from this menu will default to that same database file.

EASY View: When selected, it switches the database item view from the categorized (default) to the non-categorized (by item number). See Figure 8 for this EASY View.

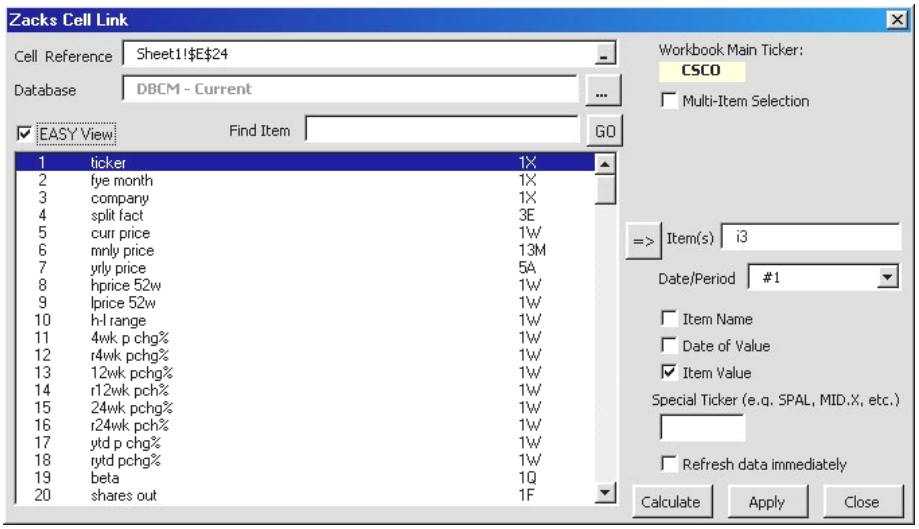


Figure 8 – EASY View Example

Find Item: Searches for individual items via their descriptions. For example, entering "downgr" and selecting **GO** will take you to DBCM item 556 (% Rating Downgrades – 1 week).

GO: Initiates search in conjunction with the **Find Item** box. If you click **GO** more than once, it will continue finding the next item within the database with you specified search criteria until the last item is reached.

Category List Box (not labeled): Categories of items to choose for the database selected. When you select a category, the **Items List** box to the right displays a list of items to choose from.

Items List Box (not labeled): Items displayed when a category is selected. Select an item(s) to be placed in the **Item(s)** box to the right. This works in conjunction with the **=>** button. In the non-**Multi-Item Selection** mode, double clicking on any single items places the item in the specified cell.

Multi-Item Selection: Selects multiple items simultaneously by using the Control (**CTRL**) key and your cursor.

Item(s): In the single item selection mode, a single item is placed in this box each time you select an item from the list box. Each item is represented by the letter 'i' and the number of the item in the database (e.g. i3 = Company Name).

In the **Multi-Item** selection mode, the items get placed in this box only after selecting the **=>** button. You may change the items manually by editing the box yourself. Use commas to separate the items. Although these items are placed in this box, it is still not yet placed in the spreadsheet cells. The **Apply** button places them in spreadsheet cells.

=>: In the Multi-item selection mode, click this button to place items the Items box before they are actually placed in spreadsheet cells. The Apply button places them in spreadsheet cells.

Date/Period: Allows users to select a date/period for a item. If there is no data available for that date/period, the spreadsheet will display a **#N/A** or a choice of other error values as defined in the **Options** menu.

The box can be filled with the desired date or period by selecting from the drop-down menu or by entering into the box directly using a valid date format. Each of the items in the drop-down menu is designed to be a "template" so that after selecting the item from the list, you can change it directly (by typing in the box). See Appendix B for date formats.

Item Name: Select this check box if you want the name of the item (e.g. "F(1) Consensus Estimate") included in the spreadsheet cell.

Date of Value: Select this check box if you want the date of the item in mm/dd/yy format (e.g. "06/30/99") included in the spreadsheet cell.

Item Value: Select this check box, if you want the value of the item (default) included in the spreadsheet cell.

Special Ticker: Allows users the option to specify another ticker symbol. It can be a company or an index (e.g. SPAL, MID.X). This ticker is mainly intended for use as a benchmark to compare with the main ticker.

For example the main ticker, IBM, can be compared with the S&P 500 index benchmark, SPAL (the Special Ticker). This **Special Ticker** will only be applicable to the current selected cell and the ticker will not change unless it is manually changed within the cell. Neither *Main Ticker (Single Co. Report)* nor the *Active Sheet Ticker Link* submenu will change the link that is created using the Special Ticker.

Refresh data immediately: This only applies to the INTERNET MODE. Click this check box if you want to see real data be downloaded into the cells upon selecting Apply. If this check box is not selected, cells would show a temporary display (e.g. #DBCM(5,R,,V)) until you manually Refresh Zacks Data. If you would like to see data on the spreadsheet while this menu is open, be sure to select this check box.

Calculate: This button opens an expansion window to create custom formulas. See Appendix E on how to use this feature.

Close: Closes the dialogue box. **INTERNET MODE:** Prompts you for an update of data via the Internet (as in Figure 21).

LOCAL MODE: Data appears instantly on spreadsheet. See Figure 9.

INTERNET MODE: If the "Refresh data immediately" check box is not selected, temporary links beginning with the '#' character are displayed. These characters describe what is to be downloaded (e.g. #DBCM(5,R,,V)) means that the Value for Item 5 from the most Recent date is to be retrieved. Real data replaces the temporary links on the next Internet update (refresh) of Zacks data. See Figure 10. Closing the Dialogue Box prompts you for an immediate Internet update.

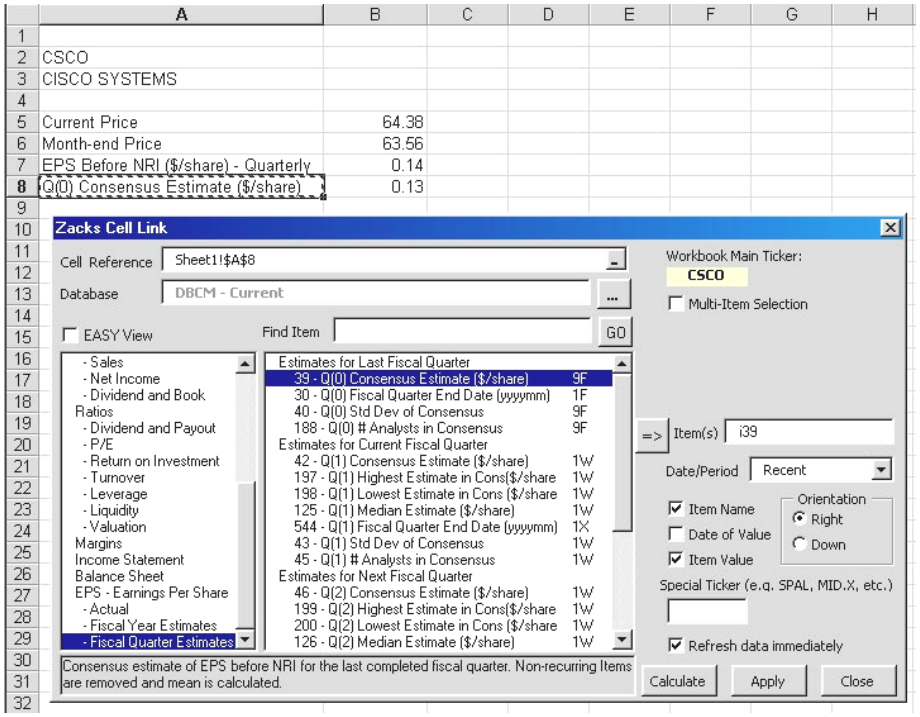


Figure 9 – Entering Data Links in Local Mode

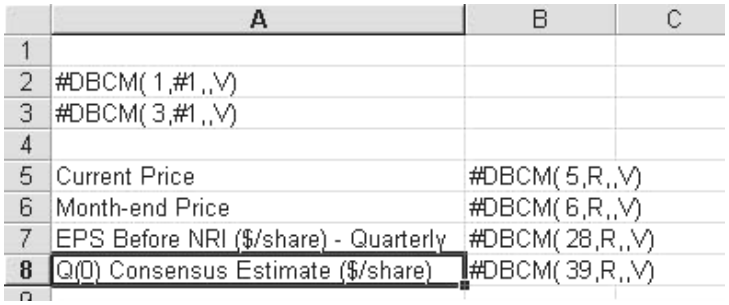

#DBCM(1,#1,,V)
#DBCM(3,#1,,V)
Current Price #DBCM(5,R,,V)
Month-end Price #DBCM(6,R,,V)
EPS Before NRI ($/share) - Quarterly #DBCM(28,R,,V)
Q(0) Consensus Estimate ($/share) #DBCM(39,R,,V)

Figure 10 – Entering Data Links in Internet Mode

Time Series Link

Time Series Link allows users to quickly design a report that includes data spanning a specified period of time. You can select a database and item-related options to set series of data links. Unlike the **Single Cell Link** Dialogue Box, multiple data items can be inserted all at once. Its use is recommended for single-company reports.

When selecting this menu item, the **Zacks Time Series Link** dialogue box appears as shown in Figure 11.

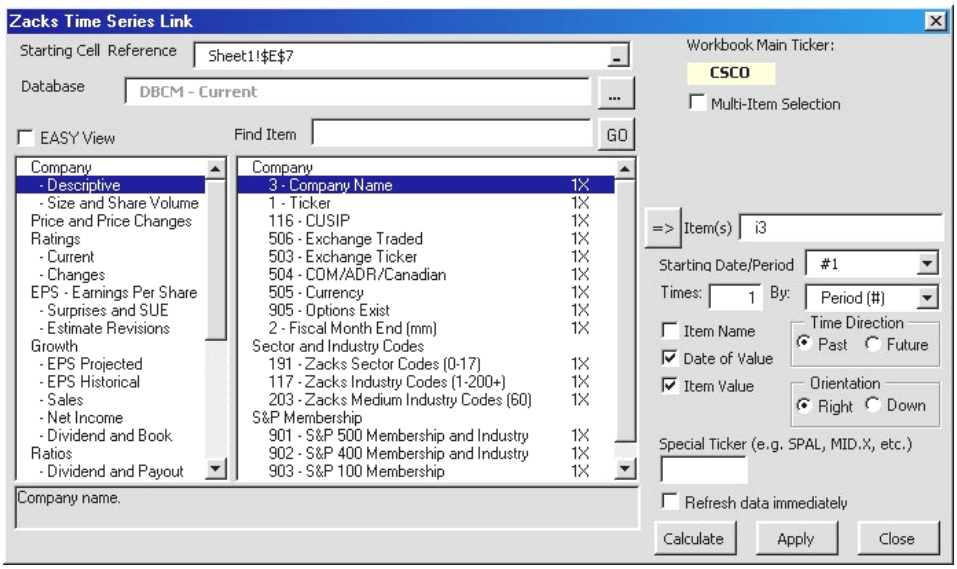


Figure 11 – Zacks Time Series Link Dialogue Box

Workbook Main Ticker: An unchangeable information box displaying the current ticker used when inserting the data items. This ticker can be changed after closing the menu and selecting either *Main Ticker (Single Co. Report)* or *Active Sheet Ticker Link* from the main menu. The Workbook Main Tticker is the default ticker or the last ticker used.

Cell Reference: When clicked select any cell in the spreadsheet, the box is updated with the exact reference to the cell. Designates exactly where you would like to insert database data. For more information on this box, see Appendix C – The Cell Reference.

Database: This box identifies the desired Zacks database. LOCAL MODE: Clicking the small gray box ... opens the standard Windows Open Dialogue Box. INTERNET MODE: Clicking the small gray box ... opens the database selection box as shown in Figure 7.

If a database was selected in another menu, the Database box from this menu will default to that same database file.

EASY View: When selected, it switches the database item view from the categorized (default) to the non-categorized (by item number). See Figure 8 for this EASY View.

Find Item: Searches for individual items via their descriptions. For example, entering "downgr" and selecting **GO** will take you to DBCM item 556 (% Rating Downgrades – 1 week).

GO: Initiates search in conjunction with the **Find Item** box. If you click **GO** more than once, it will continue finding the next item within the database with you specified search criteria until the last item is reached.

Category List Box (not labeled): Categories of items to choose for the database selected. When you select a category, the **Items List** box to the right displays a list of items to choose from.

Items List Box (not labeled): Items displayed when a category is selected. Select an item(s) to be placed in the **Item(s)** box to the right. This works in

conjunction with the **=>** button. In the non-**Multi-Item Selection** mode, double clicking on any single items places the item in the specified cell.

Multi-Item Selection: Selects multiple items simultaneously by using the Control (**CTRL**) key and your cursor.

Item(s): In the single item selection mode, a single item is placed in this box each time you select an item from the list box. Each item is represented by the letter 'i' and the number of the item in the database (e.g. i3 = Company Name).

In the **Multi-Item** selection mode, the items get placed in this box only after selecting the **=>** button. You may change the items manually by editing the box yourself. Use commas to separate the items. Although these items are placed in this box, it is still not yet placed in the spreadsheet cells. The **Apply** button places them in spreadsheet cells.

=>: In the Multi-item selection mode, click this button to place items the Items box before they are actually placed in spreadsheet cells. The Apply button places them in spreadsheet cells.

Date/Period: Allows users to select a date/period for a item. If there is no data available for that date/period, the spreadsheet will display a **#N/A** or a choice of other error values as defined in the **Options** menu.

The box can be filled with the desired date or period by selecting from the drop-down menu or by entering into the box directly using a valid date format. Each of the items in the drop-down menu is designed to be a "template" so that after selecting the item from the list, you can change it directly (by typing in the box). See Appendix B for date formats.

Item Name: Select this check box if you want the name of the item (e.g. "F(1) Consensus Estimate") included in the spreadsheet cell.

Date of Value: Select this check box if you want the date of the item in mm/dd/yy format (e.g. "06/30/99") included in the spreadsheet cell.

Item Value: Select this check box, if you want the value of the item (default) included in the spreadsheet cell.

Special Ticker: Allows users the option to specify another ticker symbol. It can be a company or an index (e.g. SPAL, MID.X). This ticker is mainly intended for use as a benchmark to compare with the main ticker.

For example the main ticker, IBM, can be compared with the S&P 500 index benchmark, SPAL (the Special Ticker). This **Special Ticker** will only be applicable to the current selected cell and the ticker will not change unless it is manually changed within the cell. Neither *Main Ticker (Single Co. Report)* nor the *Active Sheet Ticker Link* submenu will change the link that is created using the Special Ticker.

Refresh data immediately: This only applies to the INTERNET MODE. Click this check box if you want to see real data be downloaded into the cells upon selecting Apply. If this check box is not selected, cells would show a temporary display (e.g. #DBCM(5,R,,V)) until you manually Refresh Zacks Data. If you would like to see data on the spreadsheet while this menu is open, be sure to select this check box.

Calculate: This button opens an expansion window to create custom formulas. See Appendix E on how to use this feature.

Close: Closes the dialogue box.

INTERNET MODE: Prompts you for an update of data via the Internet (as in Figure 21).

LOCAL MODE: Data appears instantly on spreadsheet. See Figure 13.

INTERNET MODE: If the "Refresh data immediately" check box is not selected, temporary links beginning with the '#' character are displayed. These characters describe what is to be downloaded (e.g. #DBCM(5,R,,V)) means that the Value for Item 5 from the most Recent date is to be retrieved. Real data replaces the temporary links on the next Internet update (refresh) of Zacks data. Closing the Dialogue Box prompts you for an immediate Internet update.

Time Series Parameters: User-defined parameters set for specific dates/periods.

Name	Meaning
Time	The number of periods of data to insert.
By	The periodicity or by what interval the data links are inserted. See Appendix B.
Time Direction	Past: From newest to oldest. Future: From oldest to newest.
Orientation	The data layout on the spreadsheet. Right: From left to right. Down: From top to bottom.

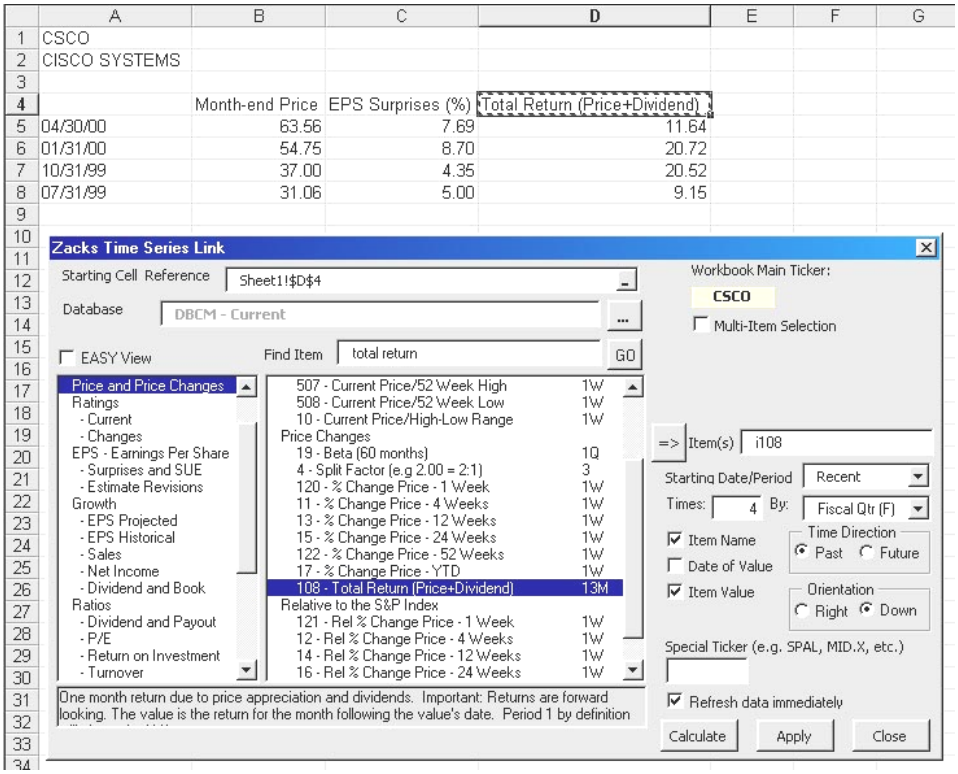

CSCO
CISCO SYSTEMS
Month-end Price
EPS Surprises (%)
Total Return (Price+Dividend)
04/30/00 63.56 7.69 11.64
01/31/00 54.75 8.70 20.72
10/31/99 37.00 4.35 20.52
07/31/99 31.06 5.00 9.15
Zacks Time Series Link
Starting Cell Reference
Sheet1!$D$4
Database
DBCM - Current
EASY View
Find Item
total return
GO
Workbook Main Ticker:
CSCO
Multi-Item Selection
Price and Price Changes
Ratings
- Current
- Changes
EPS - Earnings Per Share
- Surprises and SUE
- Estimate Revisions
Growth
- EPS Projected
- EPS Historical
- Sales
- Net Income
- Dividend and Book
Ratios
- Dividend and Payout
- P/E
- Return on Investment
- Turnover
507 - Current Price/52 Week High 1W
508 - Current Price/52 Week Low 1W
10 - Current Price/High-Low Range 1W
Price Changes
19 - Beta (60 months) 1Q
4 - Split Factor (e.g 2.00 = 2:1) 3
120 - % Change Price - 1 Week 1W
11 - % Change Price - 4 Weeks 1W
13 - % Change Price - 12 Weeks 1W
15 - % Change Price - 24 Weeks 1W
122 - % Change Price - 52 Weeks 1W
17 - % Change Price - YTD 1W
108 - Total Return (Price+Dividend) 13M
Relative to the S&P Index
121 - Rel % Change Price - 1 Week 1W
12 - Rel % Change Price - 4 Weeks 1W
14 - Rel % Change Price - 12 Weeks 1W
16 - Rel % Change Price - 24 Weeks 1W
=> Item(s) i108
Starting Date/Period Recent
Times: 4 By: Fiscal Qtr (F)
Item Name
Date of Value
Item Value
Time Direction
Past Future
Orientation
Right Down
Special Ticker (e.g. SPAL, MID.X, etc.)
One month return due to price appreciation and dividends. Important: Returns are forward looking. The value is the return for the month following the value's date. Period 1 by definition
Refresh data immediately
Calculate
Apply
Close

Figure 13 – Entering Time-Series Data Links in Local Mode

Multi-Company Table Link

Multi-Company Table Link is a set of Wizard menus. This wizard allows users to quickly design a multi-company table. You basically select a table layout, then select your items from the database(s), select the source of your tickers and then transfer the items to your spreadsheet. You can select items from more than one database. This is very useful when you want to include data items that are the same for every ticker (e.g. comparing companies within same industry).

When selecting this menu item, the **Multi-Company Table Link Wizard, Step 1** Dialogue Box displays as shown in Figure 15a.

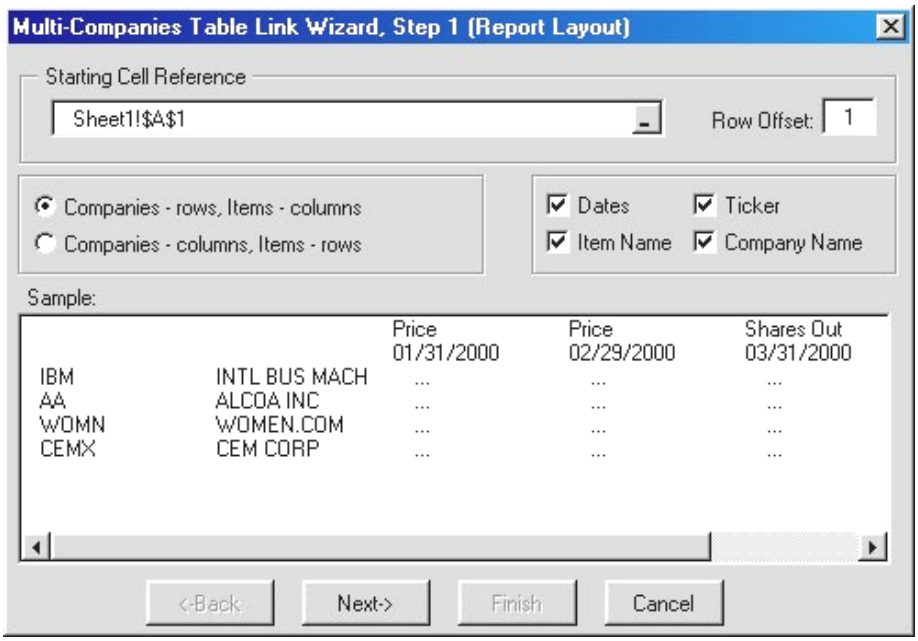


Figure 15a – Multi-Company Table Link Wizard – Step 1

Cell Reference: When clicked select any cell in the spreadsheet, the box is updated with the exact reference to the cell. Designates exactly where you would like to insert database data. For more information on this box, see "Appendix C – The Cell Reference Box".

Row Offset: This designates the number of rows below the **Starting Cell Reference** where the data will be populated. In the Figure 15a, the starting cell is A1, row 7 will contain certain Zacks Link formulas. The **Row Offset** of 1 places the beginning row for actual data at row 2. Setting the offset to 5 places the beginning row for data at row 6.

The previous description applies when the **Companies – rows, Items – columns** option button is selected. If the **Companies – columns, Items – rows** option button is selected the **Row Offset** descriptor changes to **Col Offset**. It is the number of columns to the right of the **Starting Cell Reference** column.

Companies - rows, Items – columns: Places the data for a company in one row. Data items for the company expands across columns. See the Sample area in Figure 15a for a layout of this default setting.

Companies - columns, Items – rows: Places the data for a company in a single column. Items for the company expand across rows.

Dates: Includes dates of the value. Because the dates of value normally include month, days, and year (mm/dd/yy format), use the following rule so that you'll know what to expect in a multi-company report.

If the item is a **fiscal** year item (e.g. Net Income), the date listed at the header will always be 12/31/yy.

If it is a fiscal **quarter** item, the date will be the calendar quarter nearest to or equal to the quarter in question but not later than that quarter. Thus it will always be 3/31/yy, 6/30/yy, 9/31/yy or 12/31/yy.

Example: If there are three tickers in the list – IBM (FYE month = 12), CSCO (FYE month = 7), and ORCL (FYE month = 5), and select the most recent

actual quarter EPS, and today is 4/25/00, the date for that item will be 3/31/00. The actual fiscal quarter date of items of each company will be – IBM: 3/31/00, CSCO: 1/31/00, ORCL: 2/28/00. The individual companies' dates will not display in a comparison table.

Item Name: Includes name of the database item at the part of the table header (e.g. Month-End Price).

Sample: A display area for the expected layout of the data based on your selections of the menu. The layout will change when you change the **Dates**, **Ticker**, **Item Name**, and **Company Name** checkboxes and changing the Companies/Items rows/column option buttons.

Step 2 of the wizard is shown in Figure 15b.

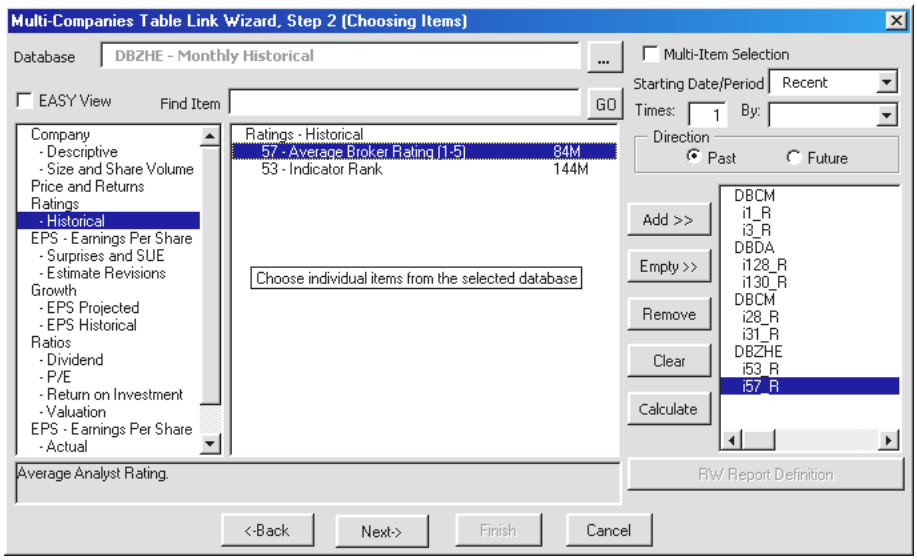


Figure 15b – Multi-Company Table Link Wizard – Step 2

Database: This box identifies the desired Zacks database. LOCAL MODE: Clicking the small gray box ... opens the standard Windows Open Dialogue Box. INTERNET MODE: Clicking the small gray box ... opens the database selection box as shown in Figure 7.

If a database was selected in another menu, the Database box from this menu will default to that same database file.

EASY View: When selected, it switches the database item view from the categorized (default) to the non-categorized (by item number). See Figure 8 for this EASY View.

Find Item: Searches for individual items via their descriptions. For example, entering "downgr" and selecting **GO** will take you to DBCM item 556 (% Rating Downgrades – 1 week).

GO: Initiates search in conjunction with the **Find Item** box. If you click **GO** more than once, it will continue finding the next item within the database with you specified search criteria until the last item is reached.

Multi-Item Selection: Selects multiple items simultaneously by using the Control (**CTRL**) key and your cursor.

Starting Date/Period: Select a date/period for the selected item. If there is no data available for that date/period, the spreadsheet will display a **#N/A** or a choice of other error values as defined in the **Options** menu.

The box can be filled with the desired date or period by selecting from the drop-down menu or by entering into the box directly using a valid date format. Each of the items in the drop-down menu is designed to be a "template" so that after selecting the item from the list, you can change it directly (by typing in the box). See Appendix B for date formats.

Times: The number of periods of data to insert. If this is more than one, be sure to select this before inserting adding to preview box.

By: The periodicity or by what interval the data links are inserted. See Appendix B.

Direction: Past: From newest to oldest. Future: From oldest to newest.

Category List Box (not labeled): Items to choose for the database selected. When you select a category, the **Items List** box to the right displays a list of items to choose.

Items List Box (not labeled): Items under a specific category. In Figure 15b, the current items displayed are from the Ratings – **Historical** category. Select item(s) to place in the **Item Preview** box at the right. Selecting the **Add>>** button also places those items in the preview box.

"Preview" List Box (not labeled): This is an area to view what will be inserted into the spreadsheet.

Each row in this preview box is equivalent to an item that will be inserted in the table on the spreadsheet for all companies.

Add>>: Places items in the **Item Preview** box before they are actually placed in spreadsheet cells. Always select any time parameters (**Starting period**, **Times**, **By**) before selecting this button.

Empty>>: Creates an empty row (or column) between items in the soon-to-be-created table. Elect any existing item in the preview box first, then the Empty button places an empty row above that selected item.

Calculate: Opens an expansion window to allow creation of custom formulas. See Appendix E on how to use this feature.

Multi-Companies Table Link Wizard, Step 3 (Report Univ...
Tickers to be entered in first table column.
Ticker List
Criteria (RW Screen Definition)
<-Back
Next->
Finish
Cancel

Figure 15c – Multi-Company Table Link Wizard – Step 3

Tickers to be entered in fist table column: Enter tickers directly into your spreadsheet. It must start from the active cell after pressing the **Finish** button.

You cannot have blank cells between tickers, as tickers after a blank cell are not included in the download. Once the tickers are entered in the spreadsheet, select **Refresh Zacks Data** from the main menu to download the data.

If you selected the companies to be placed in columns, then you will be placing tickers in one row beginning with the active cell.

Ticker List: This option lets you select from your predefined ticker list in a text file (txt). This text file can be created manually (e.g. using Notepad) without using Zacks Link as an interface or it can be created within Zacks Link. See Figure 15d for the Ticker List option menu.

Criteria (RW Screen Definition): This option lets you select from your predefined ticker screen definition (.und file) that you may have created using the separate Zacks Research Wizard application. This can be a very useful feature because it will do the screening for you within Zacks Link. Although Zacks Link can run a screen definition and create your universe of tickers from a screen definition file (".und"), it does not have the capability of designing a screen definition. Thus, the und file must be created using Research Wizard. You will see the menu in Figure 15f.

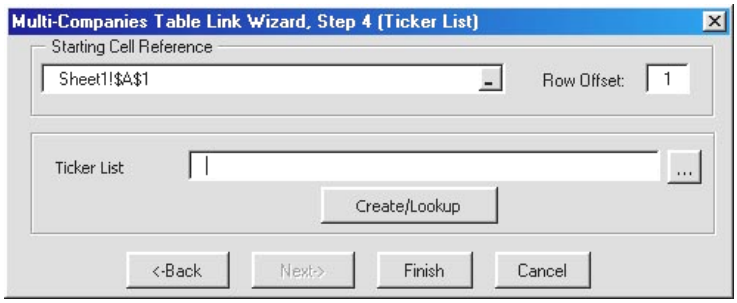


Figure 15d – Ticker List Option

Cell Reference: When clicked select any cell in the spreadsheet, the box is updated with the exact reference to the cell. Designates exactly where you would like to insert database data. For more information on this box, see "Appendix C – The Cell Reference Box".

Row Offset: Designates the number of rows below the **Starting Cell Reference** where the data will be populated if you selected **Companies – rows, Items – columns** option button in Step 1.

If the **Companies – columns, Items – rows** option button is selected in Step 1, the **Row Offset** descriptor changes to **Col Offset**. It becomes the number of columns to the right of the Starting Cell Reference column.

Ticker List: This is the path to the text file (*.txt) that has your tickers. Enter the path in directly (e.g. C:\zir\ports\myticks.txt) or use the **Browse** (…) button to select the ticker file.

Create/Lookup: Intiatiates a menu screen to create/save a text file. See the next section and Figure 15e for more details.

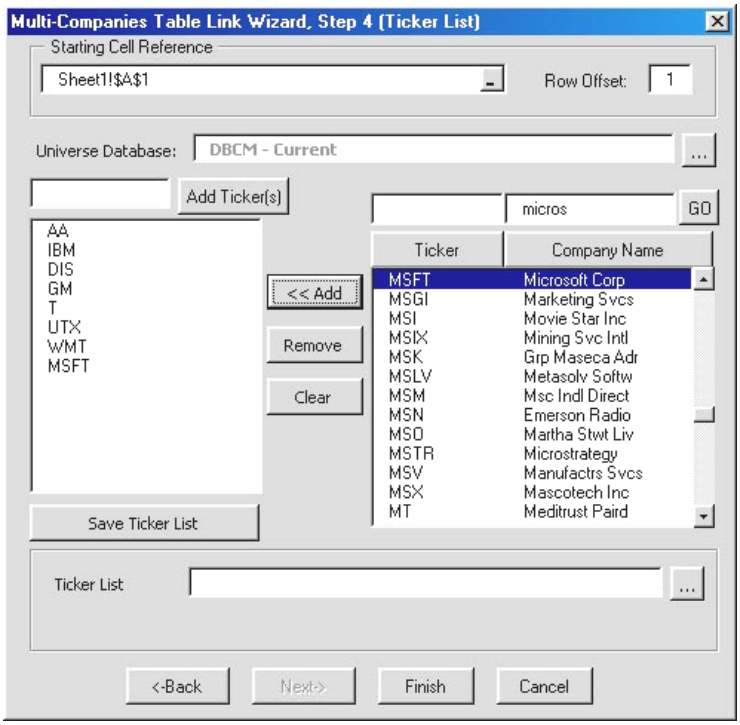


Figure 15e – Create/Lookup Tickers in Step 4

Cell Reference: When clicked select any cell in the spreadsheet, the box is updated with the exact reference to the cell. Designates exactly where you would like to insert database data. For more information on this box, see "Appendix C – The Cell Reference Box".

Row Offset: Designates the number of rows below the **Starting Cell Reference** where the data will be populated if you selected **Companies – rows, Items – columns** option button in Step 1.

If the **Companies – columns, Items – rows** option button is selected in Step 1, the **Row Offset** descriptor changes to **Col Offset**. It becomes the number of columns to the right of the Starting Cell Reference column.

Universe Database: Select from which database you wish to choose tickers. Use the browse (…) button to select database.

Add Ticker(s): Places the ticker entered into the "Preview box".

Find Ticker box (not labeled): Enter a ticker or ticker pattern (e.g. IB) and press GO to search for matched tickers.

Find Company Name box (not labeled): Enter a ticker or ticker pattern (e.g. micro) and click **GO** to search for matched company names.

GO: Each time GO is pressed, the next match will be highlighted until there are no more matches.

Ticker: Sorts sorts company list by Ticker.

Company Name: Sorts company list by Company Name.

Save Ticker List: Opens the standard windows **Save As** box to save the tickers in the preview box as a text file.

Ticker List: This is the path to the text file (*.txt) that has your tickers. Enter the path in directly (e.g. C:\zir\ports\myticks.txt) or use the Browse (…) button.

Figure 15f – Screen Definition Option

Screen Definition: This is the path to the Research Wizard screen definition file (.und) that has your tickers. Enter the path in directly (e.g. C:\zir\inputs\my screen defn.und) or use the **Browse** (…) button and select a file.

Microsoft Excel - Book1

File Edit View Insert Format Tools Data Window Help Zacks

Arial 10

A1 =zackstbl("dbda",1,"","#1","","1","8",1,1,0,"C")

	A	B	C	D	E	F	G	H
1								
2	Ticker	Company	Basic Net EPS	Diluted EPS BNRI	Qtr EPS before NRI	Anl EPS before NRI	Indicator Rank	Avg Broker Rating
3			12/31/99	12/31/99	6/30/00	12/31/99	6/30/00	6/30/00
4	AA	Alcoa Inc	1.43	1.41	0.47	1.41	34.00	1.57
5	IBM	Intl Bus Mach	4.25	3.72	1.06	3.72	34.00	1.50
6	DIS	Disney Walt	0.63	0.66	0.30	0.66	4.00	1.87
7	GM	Genl Motors	9.36	8.52	2.93	8.52	34.00	2.03
8	T	At&T Corp	1.77	2.20	0.57	2.20	96.00	1.69
9	UTX	Utd Techs Corp	3.22	2.93	1.00	2.93	11.00	1.47
10	WMT	Wal-Mart Stores	1.21	1.28	0.30	1.28	11.00	1.96
11	MSFT	Microsoft Corp	1.82	1.71	0.44	1.71	88.00	1.64
12								
13								
14								

Figure 16 – Multi-Co. Table Link Wizard Results

Notice the first row of cells is bordered in red. This first row is reserved for Zacks Link formulas related to creating tables. Every time a **Refresh Zacks Data** is performed, the data below the formula row will be cleared then repopulated with fresh data.

Main Ticker (Single-Co. Report)

IBM CM ADL

Main Ticker (Single-Co. Report) changes the main (default) ticker using this small Dialogue Box (Figure 22).

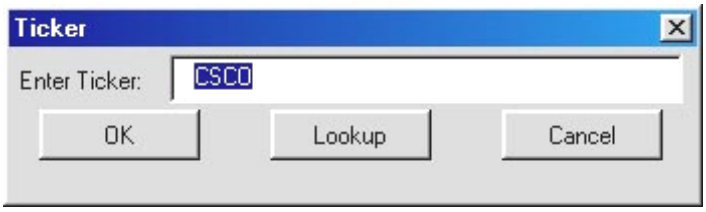


Figure 22 – Main Ticker (Single-Co. Report) Dialogue Box

When the ticker is changed in this manner, the default ticker, which resides in the C:\Windows\Zxlink.ini file, is also changed. Any Zacks links (formulas) that are created in the spreadsheet in the future will use this ticker. It must be noted that ZL formulas (e.g. **=Zacks("c:\Zacks\Zir\dbcm",17,"R","","V")**) by default does not include any ticker symbols. The ticker symbol can be placed within the double quotes between the "R" and the "V". The **Main Ticker** (or default ticker) is used when there is no ticker specified.

If a **Sheet Ticker Link** is created using the **Active Sheet Ticker Link** menu selection, the Sheet Ticker will override the Main, or default ticker. This allows you to set each sheet to its own ticker within a workbook. See more about the **Active Sheet Ticker Link** menu.

This menu is considered **Single-Company** because the ticker change affects only one company (the "main" company). So this method of changing ticker symbols is useful only for single-company reports.

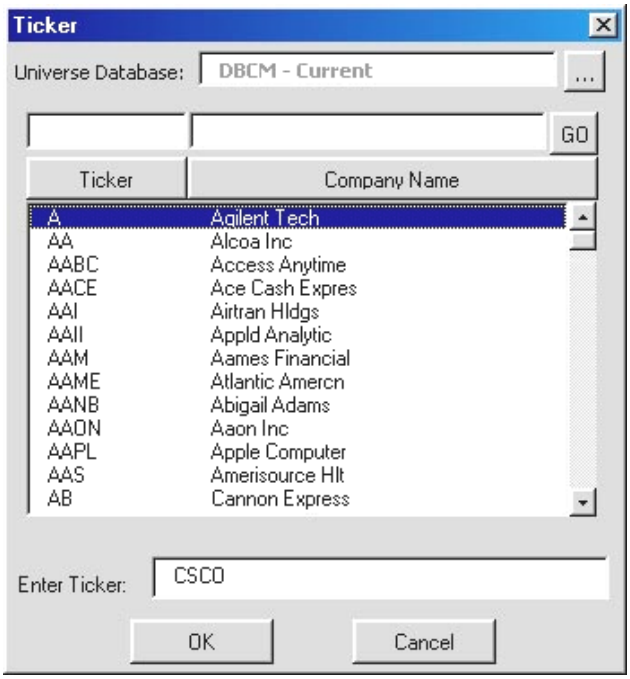


Figure 22b – Company Ticker Lookup

Universe Database: Select from which database you wish to choose tickers. Use the browse (…) button to select database.

Find Ticker box (not labeled): Enter a ticker or ticker pattern (e.g. IB) and press GO to search for matched tickers.

Find Company Name box (not labeled): Enter a ticker or ticker pattern (e.g. micro) and click **GO** to search for matched company names.

GO: Each time GO is clicked, the next match will be highlighted until there are no more matches.

Active Sheet Ticker Link

Active Sheet Ticker Link sets the ticker for the active sheet using this Dialogue Box (Figure 20).

Setting a sheet ticker in this manner overrides the main, or default ticker for the application. This allows users to set each sheet to its own ticker within a workbook.

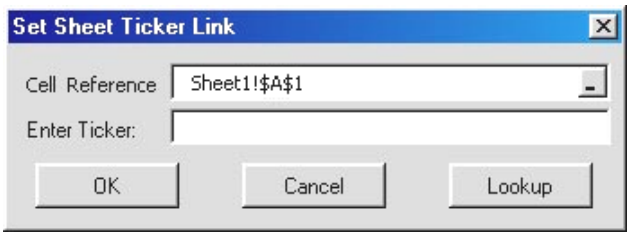


Figure 20 – Set Sheet Ticker Link Dialogue Box

Cell Reference: This is a dynamic "cell pointer". When you select (click) it, then select any cell in the spreadsheet, the box is updated with the exact reference to the cell. This is useful to designate exactly where you would like to insert database data. See Appendix C for more information on this box.

After clicking the **OK** button the link is created on the worksheet and a message pops up as in Figure 21.

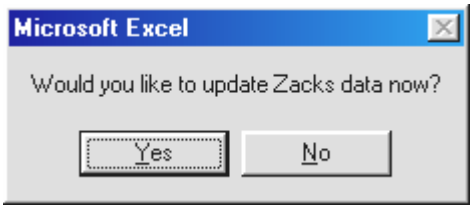


Figure 21 – Zacks Data Update Message

Clicking **Yes** refreshes Zacks data links to the new sheet ticker that just got set. Clicking **No** does not refresh and you must refresh manually later.

To change the sheet ticker, you must do so by editing the cell directly. In the example of Figure 20, the link will be: **=zticker("aol")** in cell A1 of Sheet1. You must go to that cell and change the "aol" to the new ticker. Only one sheet ticker can be set using the *Active Sheet Ticker Link,* see the **Advanced Topics** section.

Main Ticker List (Multi-Co. Table)

The main ticker list (ticker list of multiple companies) changs using this dialogue box. A standard windows Open dialogue box similar to Figure 16 opens for selecting different ticker list files. This list is normally used within Multi-Company Table Links. See the section titled: **Multi-Company Table Link** earlier in this document for more information.

Active Sheet Ticker List

Active sheet ticker list is similar to the **Main Ticker List** selection (see previous paragraph) except the ticker list is only for the current sheet.

Refresh Zacks Data

Local

This menu selection refreshes (updates) the Zacks data links on each worksheet of the active workbook to ensure that the latest data is placed on the spreadsheets. The data comes from the local installation (either hard drive or company network drive) of the Zacks databases. This menu selection is not available on applications running only in the **INTERNET MODE**.

If you are running in the **LOCAL MODE** refreshing is not usually necessary. This is feature just allows you to ensure that the latest data is retrieved from local databases.

Internet

This menu selection refreshes (updates) the Zacks data links on each worksheet of the active workbook to ensure that the latest data is placed on the spreadsheets. The data gets downloaded onto the spreadsheets from the Zacks database server via the Internet.

If you are a ZRS user (Zacks Research Systems monthly CD-ROM), you will also have this option to refresh any Zacks database data that you are entitled to.

Refreshing in this manner only retrieve data using Zacks Standard databases. This means that if custom databases were created using another application such as DBM Power, and your spreadsheet retrieves data from this database, you will not get any data via the Internet. In fact, you will see #LinkError values instead of real values. In this case, you are better off sticking with refreshing data locally.

If you are running the **LOCAL MODE** and would like to switch exclusively to the **INTERNET MODE**, please contact Zacks Technical Support for assistance.

Convert Prior Zacks Links

The two related menu selections convert all Zacks links in every worksheet of every open workbook from the prior version (prior to Zacks Link 4.0) to the current version. It is recommended that you make back-up copies of prior-version spreadsheet files. After converting a workbook, the program prompts you for saving and replacing the existing file. As long there is a back-up copy, selecting "Yes" to the prompt is recommended. The program basically searches spreadsheet cells for Zacks data links (e.g. =ZSERV|d!'I:\ZIR\DBCQ, 55,{aol},1/1/99,D') and replaces them with the latest formulas (formulas beginning with "=Zacks").

Zacks Link no longer requires spreadsheet files to have the ".xlz" extension. Thus, you should change all ".xlz" file extensions to the normal ".xls" Excel file extension.

Simple Conversion Steps

Start **Zacks Link** using Excel's File menu, open the file you would like to convert. The alert message will display, click **NO.**

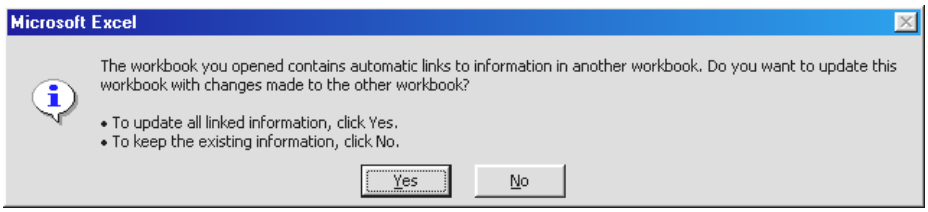

Microsoft Excel
The workbook you opened contains automatic links to information in another workbook. Do you want to update this workbook with changes made to the other workbook?
• To update all linked information, click Yes.
• To keep the existing information, click No.
Yes
No

Figure 22A – Alert Message after Opening Old Spreadsheet

Open the Zacks menu, select *Convert Prior Zacks Links* then choose the **Single Company** or **Multi Company** option.

Single-Co. Report

This selection converts to the latest links but does not include the ticker symbol that was imbedded in the prior version's links. Single-Co. reports rely on the Main Ticker by default, the ticker ('aol' in the prior paragraph's example) is not carried forward into the new link by default.

Multi-Co. Report

This selection converts to the latest links and includes the ticker symbol that was imbedded in the prior version's links. If you desire to always include tickers as part of the conversion process, you should make this selection.

Selecting either option displays the alert message of Figure 22B.

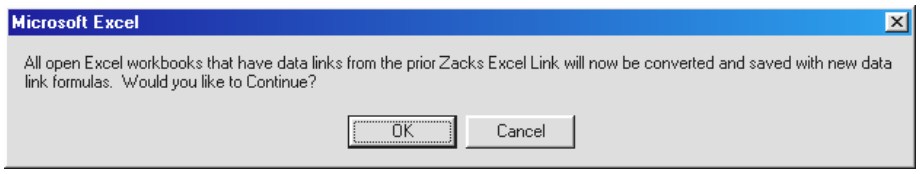

Microsoft Excel
All open Excel workbooks that have data links from the prior Zacks Excel Link will now be converted and saved with new data link formulas. Would you like to Continue?
OK
Cancel

Figure 22B – Alert Message when Converting Links

Selecting **OK** will make the program view each worksheet of every open workbook for old links (formulas that started with **=ZSERV**) and convert them to new links (formulas starting with **=ZACKS**). After going through each workbook, the application prompts you to save.

In the prior ZL program, the link: **=ZSERV|d!'DBCM,1,{mrk},#1,P'** and **=ZSERV|d!'DBCM,1,{mrk},#2,P'** resulted in two separate lines of company description text. This was because there was a text limitation within a spreadsheet cell with the 16-bit version of MS Excel. The current 32-bit environment allows all company description text to be included in one cell. Thus, when the conversion feature is utilized, only the first link, which gets converted to: **=Zacks("i:\zir\dbcm",1,"#1","mrk","P")** is necessary. You must then format the cell (e.g. resize and realign) to accommodate the full description. The second link: **=Zacks("i:\zir\dbcm", 1,"#2", "mrk", "P")** is not necessary because it results in the exact same text as the first link.

Options

The Options dialogue box allows users to view and set parameters, such as directory information (databases and Custom Reports List) and Internet User Name/Password.

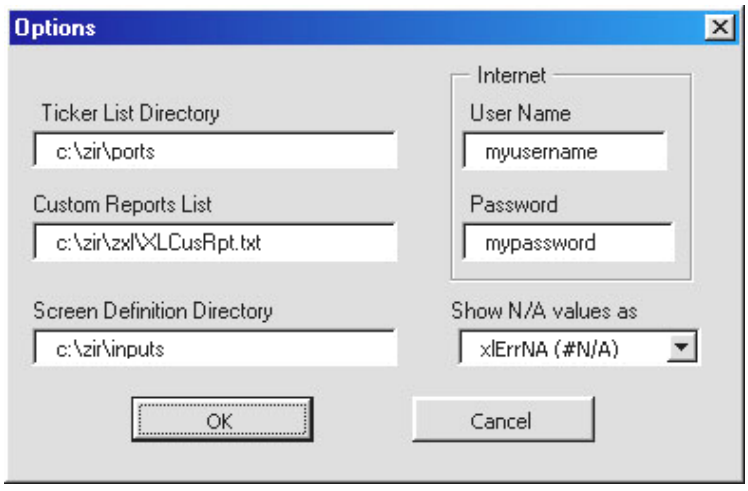


Figure 23 shows the Options menu.

Ticker List Directory: The directory that holds your ticker list files (.txt files). Installation of Zacks Link should have placed a Myportf.txt sample file in the default directory.

Custom Reports List: The directory that holds XLCusRpt.txt file. This is for your Custom Company Reports menu. See the Edit Custom Report List and Custom Company Reports sections in prior s.

Screen Definition Directory: The directory that screen definition files (.und files) created by the Zacks Research Wizard screening tool.

User Name: The user name provided by your Zacks representative to have access to Zacks databases via Internet download.

Password: The password provided by your Zacks representative to have access to Zacks databases via Internet download.

Show N/A values as: The possible values that you set to display on your spreadsheets when there are N/A values encountered.

- **XlErrNA (#N/A):** This is the default value. Your spreadsheet cells will have #N/A as the displayed value. This is an Excel-standard recognized value. Thus you can use this value to work with standard Excel formulas such as "=ISNA(B2)".
- **Nothing (Empty):** This is simply an empty cell. It is not quite like a cell that has a blank. But it practically the same as a blank cell.
- **Blank (Space):** Basically the same as an empty cell but a space is used instead. Would recommend using Nothing (Empty) instead.
- **Zero (0 value):** Places a zero value in the cell. Note that this can affect averages, as zeroes would be part of averages while empty cells would be ignored.

Advanced Topics

Editing Zacks Link Formulas

If you are an advanced Microsoft Excel user, you can be adventurous and edit ZL formulas directly. Because ZL formulas follow the standard format of Excel worksheet functions, you can take advantage of this feature. Besides the flexibility of setting custom cell formulas, the biggest advantage of doing this is that Zacks links can be set up to respond to changes to *cell contents*, without always having to go to Zacks dialogue boxes to set Zacks links. In other words, when you change a worksheet cell the rest of the spreadsheet changes instantly.

Edit Formula dialogue box**:** To open the **Edit Formula** dialogue box, select a cell that contains a ZL formula and click on the gray "=" sign just left of the "=" sign of the "=Zacks()" formula. The Dialogue Box in Figure 23 opens.

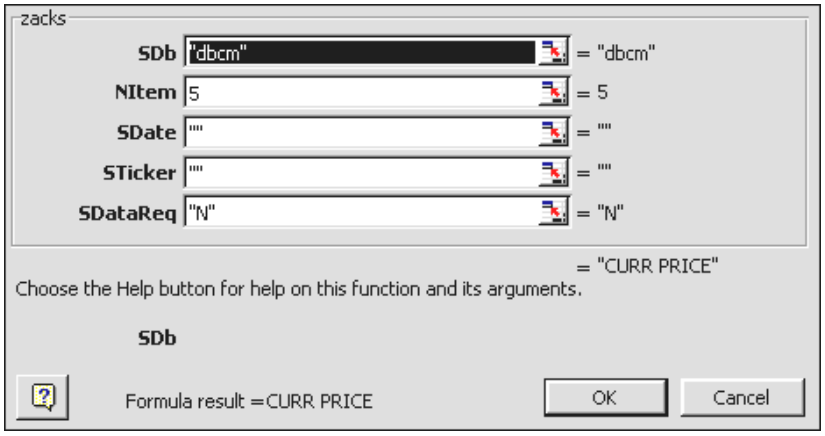


Figure 23 – Zacks Link Formula using Excel's Standard Edit Formula Dialogue Box

Here you can see which arguments (inputs) the Zacks() function expects. You can move this dialogue box around for better spreadsheet visibility by dragging the dialogue box to desired position. A nice feature on this dialogue box is that you can place cell references (e.g. B3, for cell B3 in the spreadsheet) in any of the boxes. The first two arguments are required and the last three are optional. The following are descriptions of each argument.

SDb: The database name. You can also specify the full path of database (e.g. “C:\Zacks\Zir\dbcm.dbs”). Specifying the full database path overrides the default database location specified in the *Options* submenu.

NItem: The item number of the database.

SDate (Optional)**:** The date/period of the database item. Defaults to “R” for most recent. Appendix B showe what can be placed as this argument.

STicker (Optional)**:** The ticker symbol. Defaults to the Main Ticker.

SDataReq (Optional)**:** The type of data defaults to **V** for **Value**. (Other possibilities are **D – Date of Value, N - Name of Item**).

Exercise 1

Create the following links using the Single Cell Link menu (Figure 24).

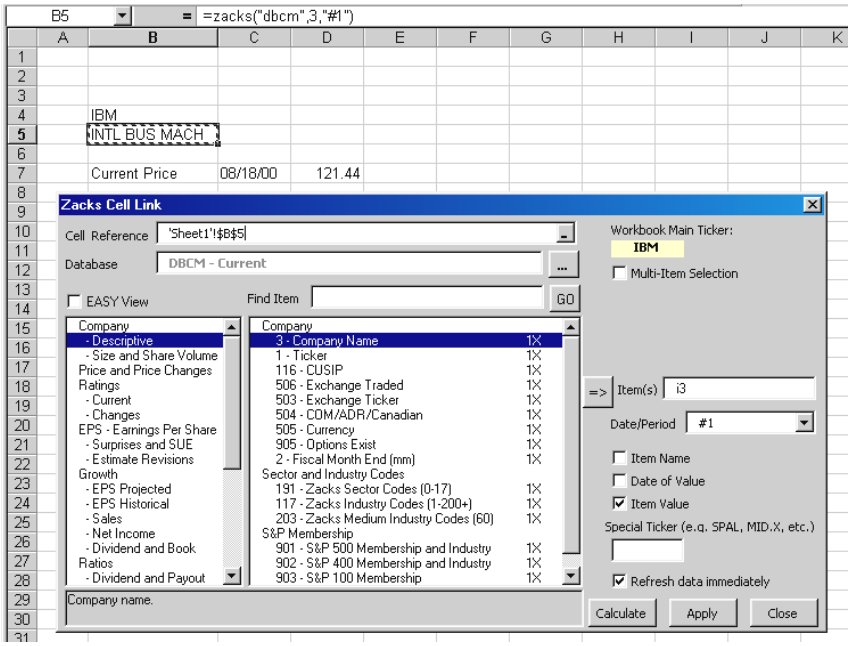


Figure 24 – Create Five Links Using “Single Cell Link…”

Select each of the five links and view its formulas.

Notice that the ticker symbol “IBM” is nowhere in any of the formulas. This is because the main (default) ticker symbol takes control of all non-specified links.

Make cell B4 the ticker cell and just enter “IBM” in that cell (remove ZL formula). Modify the other links so that they all look at cell B4 for the ticker.

Select Cell B5. Open the **Edit Formula** dialogue box and as in Figure 23 and enter B4 (no quotation marks) in the STicker box, or click in the **STicker** box then click cell B4 of the spreadsheet.

Repeat for the other three cells.

Refresh Zacks links (if in **INTERNET MODE**). Notice the cell values have not changed. Change “IBM” in cell B4 to “HWP”. After refreshing data (if in **INTERNET MODE**), notice the cells are consistent with the new ticker symbol (Hewlett Packard). The spreadsheet is more “live” as it responds to

changes in other cell contents. Changing the **Main Ticker** using the main menu selection has no effect on the spreadsheet values.

Every box in the **Edit Formula** dialogue box of Figure 23 can be a *reference* to another cell instead of a hard-coded number or text.

Imagine being able to place a user-defined series of dates or a series of item numbers in another area of the spreadsheet and have the links reference those cells. Or imagine having cells full of tickers and use these cells as the reference cells for other areas of the spreadsheet. The following more advanced example illustrates the power of using Zacks Links and references.

Exercise 2

Create a spreadsheet that displays all items of the DBCM database.

Say, column **B** will hold the database item **numbers**, column **C**: **name** of the items, column **D**: **value** of items, and column **E**: **date** of the items.

Enter DBCM in cell B2 and set C2 as the ticker reference, then enter IBM initially.

In cell B5 enter the number "1".

In cell B6, enter the formula: "=B5+1".

In cell C5, create any sample link using the *Single Cell Link* menu item.

Open the **Edit Formula** dialogue box as in Figure 23 and enter arguments as follows:

SDb: $B$2 (no quotes). The '$' character is used because cell B2 will always be the location of database name in the spreadsheet.

NItem: $B5. The item column should not change.

SDate: R (for most Recent)

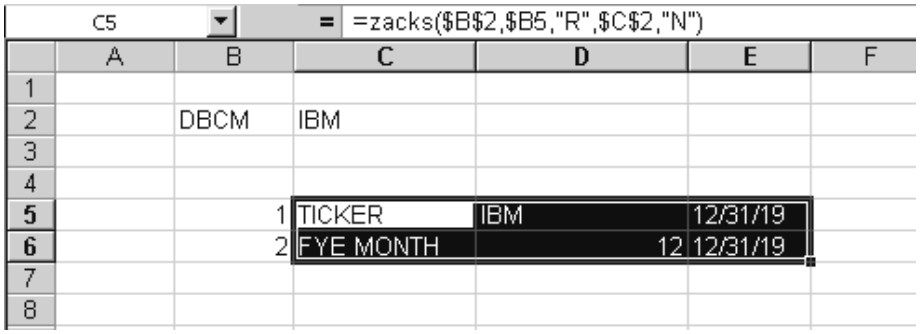
STicker: $C$2. This ticker location should not change.

SDataReq: N (for Name of item)

Copy cell C5 and paste to cells D5: E5 (or use Excel's "Fill Right" option).

Change D5 so the **SDataReq** argument has "V" for value then change E5 to "D" for date.

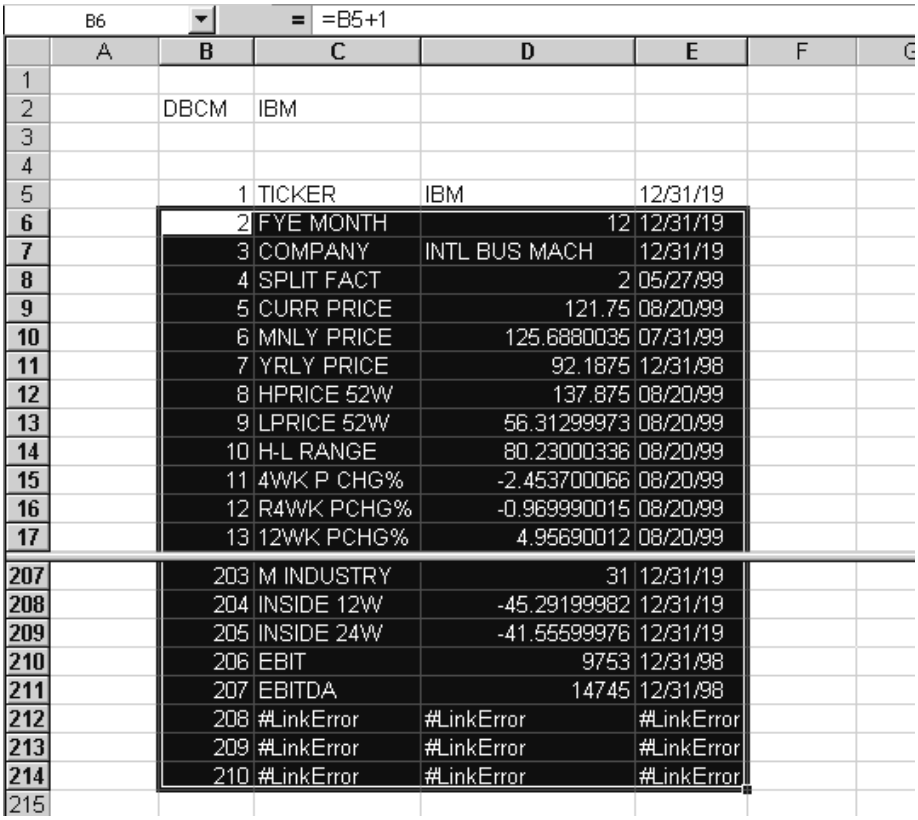
Copy cells C5: E5 to C6: E6 (or use Excel's "Fill Down" option). Figure 25 shows what should be in the spreadsheet so far.[1]



[1] ZL running in **INTERNET MODE** requires refreshing of Zacks Links via the Internet.

Figure 25 – Preparing Spreadsheet to Display DBCM Contents

Highlight cells B6: E6 and use Excel's "Fill Down" option to fill data all the way down to row 214. The result is shown in Figure 26.



B6 = =B5+1

	A	B	C	D	E	F
1						
2		DBCM	IBM			
3						
4						
5		1	TICKER	IBM	12/31/19	
6		2	FYE MONTH	12	12/31/19	
7		3	COMPANY	INTL BUS MACH	12/31/19	
8		4	SPLIT FACT	2	05/27/99	
9		5	CURR PRICE	121.75	08/20/99	
10		6	MNLY PRICE	125.6880035	07/31/99	
11		7	YRLY PRICE	92.1875	12/31/98	
12		8	HPRICE 52W	137.875	08/20/99	
13		9	LPRICE 52W	56.31299973	08/20/99	
14		10	H-L RANGE	80.23000336	08/20/99	
15		11	4WK P CHG%	-2.453700066	08/20/99	
16		12	R4WK PCHG%	-0.969990015	08/20/99	
17		13	12WK PCHG%	4.95690012	08/20/99	
207		203	M INDUSTRY	31	12/31/19	
208		204	INSIDE 12W	-45.29199982	12/31/19	
209		205	INSIDE 24W	-41.55599976	12/31/19	
210		206	EBIT	9753	12/31/98	
211		207	EBITDA	14745	12/31/98	
212		208	#LinkError	#LinkError	#LinkError	
213		209	#LinkError	#LinkError	#LinkError	
214		210	#LinkError	#LinkError	#LinkError	
215						

Figure 26 – Split-Screen View after Doing "Fill Down" of Cells B6:E6

All links are updated properly and instantly![2]. When changing a ticker in a cell or database all of the links immediately change[3] to be consistent with the cell change.

The #LinkError seen after item 207 exists because there are no more items after item 207. You should be aware that the dates for certain items should be ignored because they are non-meaningful (e.g. date for item #1 – ticker symbol).

[2] ZL running in **INTERNET MODE** requires refreshing of Zacks Links via the Internet.

Appendices

Appendix A – Zacks Database Item Interpretation

Each database item listed in the "Item" drop-down menu of ZL edit Dialogue Boxes has several pieces of useful information.

<Item #> <Item Name> (<# of periods> <periodicity>)

Example, if the item is "97 book/share (3Y)", this is interpreted as the following: There are 3 data points available for item #97. Each item is the Fiscal year-end book/share value.

Here are more examples of how to interpret database items as shown in the Items drop-down menu.

Database Item	**Interpretation**
1 ticker (1X)	Item #1 – ticker symbol (only 1 data point necessary)
4 split fact (3E)	Item #4 – split factor for that last 3 occurrences (Events)
5 curr price (1W)	Item #5 – most recent Week's current price
6 mnly price (13M)	Item #6 – month-end prices for the last 13 Months.
7 yrly price (5A)	Item #7 – year-end prices for the last 5 *calendar* years (Annually).
27 5yr aveyld (2Q)	Item #27 – 5-year average yields for the last 2 *calendar* Quarters.
28 act eps q (9F)	Item #28 – actual quarterly eps for the last 9 *fiscal* Quarters.
31 act eps y (5Y)	Item #31 – yearly actual eps for last 5 *fiscal* years.

For more information on databases and database formats, please refer to the Zacks Research System Database Appendix publication.

Appendix B – Zacks Link Date Formats

The basic list of Date items:

Item	Meaning
Recent or R	The most recent data that is not N/A.
Today or T	The most current available data period (N/A possible). In most cases, T and R dates are equivalent.
#n	Can select a number to specify a specific period. Date periods are designated from the most recent to least recent, with #1 being the most recent available data.
m/d/yyyy or m/d/yy	A specific date.
Date Offsets	Any date or period can be added-to or subtracted-from in order to get a specific date. The following are examples of dates using this method.
R-3A	3 calendar years before the most Recent date
R-300D	300 business days before the most Recent date
T-3Q	3 calendar quarters before the most current available date
T-11M	11 months before the most current available date.
#3-5Y	5 fiscal years before the 3rd most recent period.
3/95+3F	The fiscal quarters after 3/95
12/15/97+25D	25 business days after 12/15/97
7/1999-10W	10 weeks after 7/1999

Appendix C – The Cell Reference Box

Figure C1 – Cell Reference box

Cell Reference (also **Starting Cell Reference)** Figure C1 shows a typical dynamic "cell pointer" within a Dialogue Box. When you select (click) it, and then select any cell in the spreadsheet, the box is updated with the exact reference to the cell. This is useful to designate exactly where you would like to insert database data. You may find that it is more efficient to maneuver between cells using the UP, DOWN, LEFT, and RIGHT arrows[3] of the keyboard with one hand and select items using the other hand (mouse).

The cursor must be inside the **Cell Reference** box first before making any cell selections. If the cursor is in another box of the Dialogue Box, you must click on the **Cell Reference** box again if you want to select another spreadsheet cell. Additionally, you cannot switch sheets while in the cell edit mode. The **Cell Reference** box works more reliably if the active sheet is edited instead of another sheet while the cell edit Dialogue Boxes are open. So you would need to close the Dialogue Box, select the next sheet, and then reopen the Dialogue Box. Otherwise, the program will display an error message notifying you that selecting a another sheet is not allowed while the Dialogue Box is open.

[3] Using these arrows is not available in Excel 2000.

It is not necessary to click on the small, gray box on the right side of the Cell Reference box. However, if it is selected, the box in Figure C2 appears.

Figure C2 – Cell Reference Box in Expanded Mode

You can select any spreadsheet cell and then return to the full screen mode (e.g. Figure 6) by selecting the small box (with the red arrow).

Appendix D – Zacks Links Vs Excel's Links

This appendix tries to distinguish between two different types of the term "links" when using Zacks Link.

Zacks Links

These links refers to formulas or functions created by the ZL application to link with Zacks databases. The most common formula begins with " =Zacks()". They can be created using Zacks Link user interfaces or by directly creating the formulas in the cells.

Excel's Links

These links refers to formulas or functions created when an Excel user makes a reference to another Excel workbook file within your computer file system. For example if there are two workbook files open called MyFile1.xls and MyFile2.xls, a link can be created in MyFile1 to reference MyFile2. Let's say that in cell A3 of MyFile1, a formula is created referencing cell B5 of MyFile2. Then, when MyFile2 is closed, the formula would look similar to this:

='C:\My Folder\[MyFile2.xls]Sheet1'!$B$5

So every time MyFile1 is opened by itself, a message as shown in Figure D1 opens.

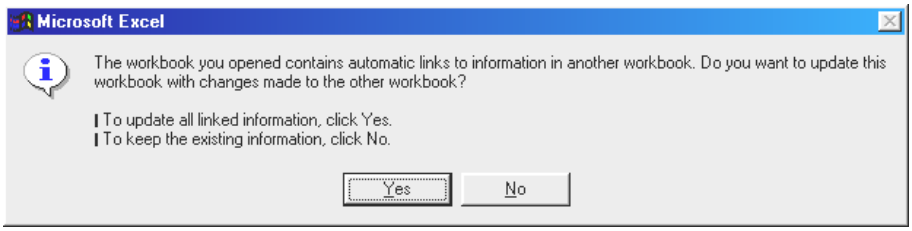

Microsoft Excel
The workbook you opened contains automatic links to information in another workbook. Do you want to update this workbook with changes made to the other workbook?
To update all linked information, click Yes.
To keep the existing information, click No.
Yes
No

Figure D1 – Excel Message When Opening Workbook with Excel Links

You can then make a decision to update "links" (Excel's, not Zacks) to the other workbook. Zacks Link users should not see this message except in rare cases such as the one described in the next paragraph.

Zacks Link Special Case

Figure D1 may appear under special circumstances. If you move the location of the ZXL.XLA application add-in file, and then tries to open a Zacks Link workbook file, the message in Figure D1 is displayed. Why would the **ZXL.XLA** file be moved? Here are a few possibilities. Zacks Link may be uninstalled/reinstalled. You may get new computers with different directory structures. Zacks Link may get installed in a network drive instead of local. There are definitely possibilities. Additionally, if you receive a Zacks Link workbook file from another user who may have installed Zacks Link in a different folder, the message would appear.

You would also notice that Zacks Link formulas appear altered. For example, **=Zacks("DBCM",5,"R","","V")** would look something like: **='C:\ZIR\ZL\ZXL.XLA'!zacks("DBCM",5,"R","","V")**.

How then could you resolve this issue? Be sure that Zacks Link is running. After opening a Zacks Link workbook file, when the message in Figure D1 pops up, select No. Select "Links…" from Excel's Edit menu. As shown in Figure D2, select Change Source… and locate the **ZXL.XLA** file for the application in the next menu. After selecting the file, click OK in Figure D2. Excel's "links" should now be okay.

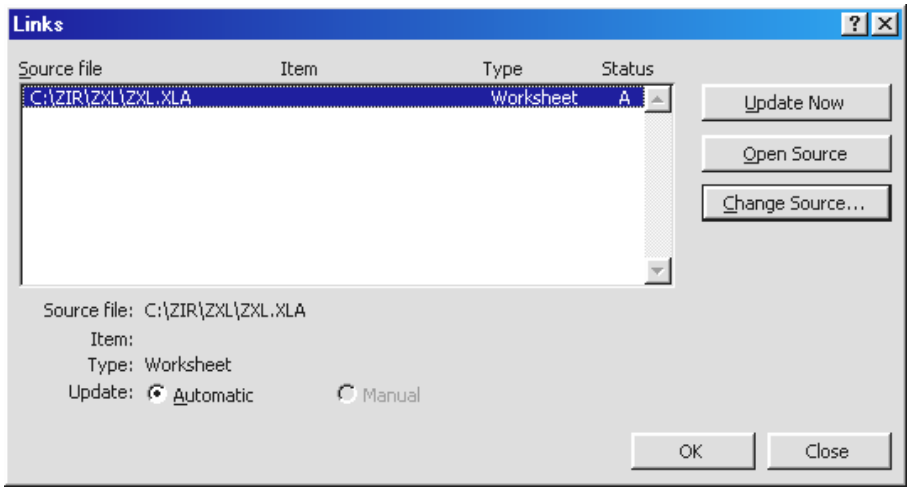


*Figure D2 – Re-establishing Links to Zacks Link **ZXL.XLA** File*

Another resolution would be to do a "Find and Replace" on all Zacks Link formulas. You would need to replace everything between the '=' sign and "Zacks(…" with a blank. This method also establishes the proper "link" to the Zacks Link **ZXL.XLA** file that is already running. However, you must repeat this for every sheet that may have Zacks Link formulas within the workbook.

Appendix E – Using Calculation Expression Builder

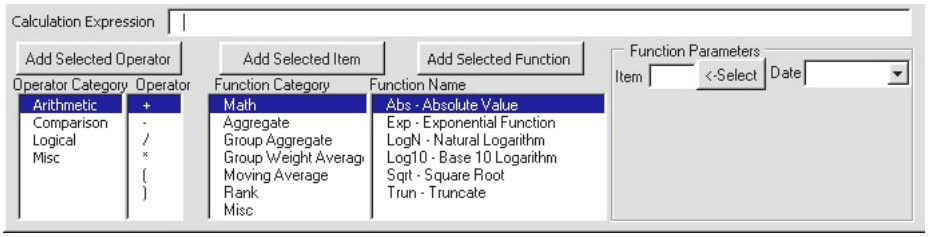


Figure E1 – Calculation Expression Builder

This is an expansion window at the bottom of the Single Cell Link, Time-Series Link, and Multi-Co Table Link menus. This allows you to build custom formulas using Zacks database items and Zacks custom functions.

This feature is for advanced users who want the flexibility to build custom formulas. This flexibility also requires some patience and knowledge of constructing formulas from scratch.

Let's look at the controls of the menu in Figure E1 in more detail.

Calculation Expression: This is the area where you will see what your formula looks like as you build it. It is sort of a "preview" of what to expect. The formula characters will appear as you use the various buttons and selection boxes. You may also edit this box manually if you feel comfortable doing so.

Add Selected Operator: Places the selected Operator in the Calculation Expression box. It will always be placed at the end of the formula.

Add Selected Item: This button will place the item that is selected from the Items list box that is above the Calculation expansion window (not shown in Figure E1) at the end of the Calculation Expression box.

Add Selected Function: This works with the Item box (within Function Parameters area) and the Function Name. You must first place an item inside the Item box (use <-Select). Then decide which Function you'd like to apply to that item. The item effectively becomes the input to the function. Depending on the function you select, you may have to select other function parameters form the lower right-hand corner of the window. The function with the associated parameters will again be placed at the end of the Calculation Expression box.

Operator Category: These are the different categories of operators to choose from. Each selection displays a different set of operators in the Operator list box.

Operator: Displays the operators available for the category selected in the previous box. Double clicking places the operator directly at the end of the Calculation Expression box.

Function Category: These are the different category of functions to choose from. Each selection displays a different set of functions in the Function Name list box.

Function Name: Displays the functions available for the category selected in the previous box. Must have something in the Item box (inside Function Parameters area) to use the function properly. Double clicking places the function directly at the end of the Calculation Expression box.

Function Parameters

Item: In order to apply a function to an item, this box must be filled with the item. Select the item from Item list box (above in the main part of form), and click the <-Select button.

<-Select: Click this button to transfer the item from the item list box into the Item box.

Date: This drop-down menu contains the possible date or periods for this item. You can also specify a custom date (see Appendix B).

Additional Parameters: Depending on the function, there may be additional parameters you can choose in this area. See Appendix F for complete listing of functions and their parameters.

When you are ready to actually place the calculation expression in the spreadsheet, click on the Apply button just above the Calculation Expression window.

Appendix F - Operators and Functions

Using Operators and Functions in Zacks Link

Zacks Link provides a comprehensive set of operators and functions that you may use to create new items or calculation expressions. The following is an example of a calculation expression:

Example 1:

i10 = (i7/i14) / (i14 > 0) This calculation expression will return a 1 if true and a 0 if false.

i10 = A new item whose value will depend upon the calculated Boolean expression on the right side of the equation.

i7 = Refers to price item

i14: Refers to EPS item

/ = Division operator

* = Multiplier operator (Also works as logical AND operator)

Results: Calculate Price/Earnings ratio; include only those companies where EPS is greater than zero.

Example 2:

Using if-then-else statements in Zacks Link

If-then-else statements in Zacks Link are computed by Boolean logic (True = 1, False = 0)

+ Can be used logical OR operator

* Can be used as logical AND operator

If an expression is true it results in a value of 1, otherwise it's value is 0.

The following expression will create a variable that will identify small, medium, and large cap stocks. In this example, the following definitions of small, medium, and large cap stocks are used:

Small Cap (1): < $500 million

Medium Cap(2): 500-3000 Million

Large Cap(3): > 3000 Million

i11 = (i12 < 500) + ((i12 >= 500) * (i12 < =3000)*2) + ((i12 > 3000) * 3)

i11 = New item whose value could be 1, 2, 3 based on market value of the stock: Small, Medium or Large cap.

How to Reference an Item in a Calculation Expression

Data Elements	Usage	Comment
ix	i7	"i" stands for "item", X references an item number, i7 - item 7.
ix[Recent]	i7[Recent] or i7[r]	The Recent function works as an absolute recent function. The most recent value of item 7 in a time series is used as a variable in calculations for the full time series and writes from recent to history. This function overwrites existing data points.
ix[Relative Recent]	i7[rr]	The Relative Recent function takes the most recent value of item 7 in a time series and applies it to more recent periods for which there is no data.
ix[Date]	i7[12/97]	Refers to the 12/97 period for item 7.
ix[# period]	i7[#4]	Refers to the fourth period of item 7.
ix[r-2Q]	i7[r-2Q]	Refers to the two quarterly periods before the most recent period of available data for item 7.
ix[-4]	i7[-4]	Lag item 7 by four periods for each data point.
ix[4]	i7[4]	Lead item 7 by four periods for each data point.
ix[Today – 5M]	i7[Today – 5M] Today = Period#1	Refers to a period that is 5 months previous to the first period. This is same as i7[#1-5M].
ix[Today]	i7[Today]	Refers to the first period. This is same as i7[T].
ix[Date, Ticker]	i7[12/97, SPAL]	Refers to the data for SPAL for the 12/97 period. This will overwrite the full time series data for the entire universe for ALL i7's – Useful in relative calculation using SPAL or an Index ticker.
ix[, Ticker]	i7[, IBM]	Refers to the data for IBM for all periods.
databasename:ix	zbt_pri:i7	Refers to item 7 of the Additional Source Database, in this case ZBT_PRI.DBS.
ix = "function or operator"	i25 = MovingMean4 (i7)	Creates a new database item (i25) that is calculated according to specified functions and/or operators. In the example, item 25 provides moving mean of i7 (price) taking data for four periods at a

		time (See Operator Category and Function Category).

The usage of operators and functions are described in the following tables.

Operator Category

Arithmetic Operators

Operator	Usage	Result
+	X+Y	Adds items and/or values together.
-	X-Y	Subtracts one or more items and/or values.
/	X/Y	Divides one or more items and/or values.
*	X*Y	Multiplies one or more items and/or values.
( )	(X+1)/(Y+1)	Allows items and/or expressions to be grouped to simplify calculations.

Comparison Operators

Operator	Usage	Result
>	X>Y	States the condition that item X is greater than item Y. If the condition is true 1 is returned else zero.
> =	X>=Y	X is greater than or equal to Y.
<	X<Y	X is less than Y.
< =	X<=Y	X is less than or equal to Y.
=	X=Y	X is equal to Y.
< >	X< >Y	X is not equal to Y.

Logical Operators

Operator	Usage	Result
AND	A AND B	States that the conditions given by both A and B must be met – results are the same as combining a Boolean expression using " * ".
OR	A OR B	States that the conditions given by either A or B must be met – results are the same as combining a Boolean expression using " + ".

Miscellaneous Operators

Operator	Usage	Result
|	ix|iy	Choose ix if ix is not N/A. If ix is N/A then choose iy.
^	x^y	Takes the exponential value of x to the yth power.

Function Category

Math Functions

Using Math functions, you can calculate sums, medians, means, percentage changes, logs and anti-logs, absolute values, roots, powers and integer values.

Function	Usage	Result	Comment
Abs	Abs(i7)	25 if i7 = 25 or –25	Gives the absolute value of a given item or value.
Exp	Exp(i7)	20.09 if i7 = 3	Takes the exponential value of e to the n^{th} where n is a value or an item, in this case, i7.
LogN	LogN(i7)	3.22 if i7 = 25	Gives the natural log of an item or value.
Log10	Log10(i7)	1.3979 if i7 = 25	Gives the log base 10 value of an item.
Sqrt	Sqrt(i7)	8 if i7 = 64	Gives the square root of an item or value.
Trun	Trun(i7)	251 if i7 = 250.75	Expresses an item in truncated form, or rounded up to the nearest whole number.

Using Aggregate Functions

Aggregation functions allow you to group database items by tickers. Six types of aggregation statistics are available with aggregation function: Arithmetic mean, median, sum, standard deviation, low, and high. Aggregations are done over a set of tickers. For example, suppose you have a database that has 10 tickers in it and five items and we are looking at the data for the period 12/31/97 (see *Table 1*).

Group: Defines a membership in a group. For example, X-Industry has 200+ members whereas Z-sector has 17 members, while a custom created special group could have only two groups. When aggregations are done by groups, tickers belonging to a given member of the group are aggregated. For example, if there are 50 companies belonging to the technology industry and if you were to aggregate the price item, the median aggregation function takes the median price of all companies within that industry, and that is the industry median price. When you then look at any technology companies, say MSFT or DELL, you will see the same industry median price value because both companies belong to the same industry.

Table 1 - Period: 12/31/97

Ticker	Item to be Aggregated Price (i7)	Weight Item (i10)	Group Item (X-Sector) (i13)	Special Group (S&P500) (Boolean values only)	SecSum (i7) Price	GrWtAvg (i7) Group (Sector) Wt Item (mkt val)	SpGrWtAvg(i7) Group (S&P500) Wt Item(mkt val) Boolean (True)
IBM	104	10173.40	10	1	17274.260	48.606	62.265
MRK	106	127015.40	4	1	8921.354	63.876	62.265
GE	73	240136.30	9	1	1288.588	66.619	62.265
GM	60	45296.47	5	1	1565.885	48.612	62.265
MSFT	64	155964.80	10	1	17274.260	48.606	62.265
QTRN	38	2856.74	4	1	8921.354	63.876	62.265
DELL	42	27787.28	10	1	17274.260	48.606	62.265
KM	11	5598.92	3	1	7408.021	38.384	62.265
EXON	61	150882.90	12	1	5849.729	52.757	62.265
MCD	47	32889.10	3	1	7408.021	38.384	62.265
BSC	47	5590.94	13	1	70130.260	1403.451	62.265

Aggregate Functions

Aggregate functions deal with statistics over the tickers of an item. Before you select the aggregation function, you must highlight the item in the database item listing that you want to aggregate.

Function	Usage	Result
AllAgg	AllAgg	Takes user to another page where the type of aggregation is selected: Avg, Median, Hi, Low, StDev, Number or Sum.
AllSum	AllSum(i7)	Gives the sum of price (i7) for the full universe.
AllMed	AllMed(i7)	Gives the median of price (i7) for the full universe.
AllMean	AllMean(i7)	Gives the arithmetic mean of price (i7) for the full universe.
AllWtAv	AllWtAv10(i7):	Gives the market value weighted price average for all tickers. This function requires 2 items: an item that is to be used for weighting (i10) and an item that is to be aggregated (i7).

* These functions are available when first choosing the AllAgg function and then selecting hi, low or standard deviation from the following section.

Group Aggregate Functions

Group aggregates allow you to aggregate a given item by any grouping variable. Common examples of group variables include Industry, Sector, and S&P 500. Similar to Simple Aggregates, the following statistics are available in the Group Aggregate function: Sum, Mean, Median, Standard deviation, High and Low.

Function	Usage	Result
GrAgg	GrAgg	Takes user to another page where the type of group aggregation is selected: (Avg, Median, Hi, Low, StDev, Number or Sum) and also any item that you may want to use for group (i.e., your group does not have to be necessarily industry, sector, or S&P 500). Some common examples include Indexes.
SpGrAgg	SpGrAgg23AT(i7) *23: Group Item* A: Agg type (average) T: Boolean value (true) i7: Aggregated item (price)	Computes the mean price for all tickers that have a value of 1 (true), as opposed to 0 (false) in the grouping item 23. This is a special group aggregation function where the group can have only two members.
Industry Group - Zacks Expanded Industry		
IndSum	IndSum(i7)	Gives the industry sum for price.
IndMed	IndMed(i7)	Gives the industry median for price.
IndMean	IndMean(i7)	Gives the industry mean for price .
IndNum	IndNum	Gives the number of companies in an industry.
Sector Group - Zacks Expanded Sector		
SecSum	SecSum(i7)	Gives the sector sum for price.
SecMed	SecMed(i7)	Gives the sector median for price.
SecMean	SecMean(i7)	Gives the sector mean for price.
S&P 500		
SPSum	SPSum(i7)	Gives the S&P 500 sum for price.
SPMed	SPMed(i7)	Gives the S&P 500 median for price.
SPMean	SPMean(i7)	Gives the S&P 500 mean for price.

Group Weight Average Functions

Group Weighted Averages provide the weighted average for a defined group. Similar to group, the weighting item can also be defined. For example, the group could be Industry and weighting item could S&P 500.

Function	Usage	Result
GrWtAv	GrWtAv20A12(i7) *20: Group item* A: Agg Type (average) 12: Weight Item (mkt value) i7: Aggregated item (price)	Gives the market value weighted average price of the group.
SpGrWtAv	SpGrWtAv20AF23(i7) 20: Group Item (sector) A: Agg Type (average) 23: Weight item (S&P 500) F: Boolean value (false) i7: Aggregated item (price)	Computes the mean price (i7) for all tickers that has a value of 0 (not 1) in the grouping item 20. The average is weighted by item 23. This is a special group aggregation function. The group is a boolean item where 0 = false and 1 = true.
SPWeightAv	SPWeightAv(i7) SP: S&P 500 (group item) i7 = Aggregated item (price)	Gives the S&P 500 market capitalization weighted mean price (the weighted average of prices for the entire S&P 500).

Moving Average Functions

Moving Average functions allow users to calculate descriptive statistics on the time series of a data item. For example if you want to calculate the average ROE over last four quarters, you may use the Moving Mean function.

Function	Usage	Result
Moving Sum	MovingSum4(i7)	Provides moving sum of price taking data for a specified number of periods (4 periods in the example) at a time.
Moving Mean	MovingMean4(i7)	Provides moving mean of price taking data for four periods at a time
Moving Lo	MovingLo4(i7)	Provides moving low of price taking data for four periods at a time
Moving Hi	MovingHi4(i7)	Provides moving high of price taking data for four periods at a time

Ranking Functions

Ranking functions allow users to sort all companies in a designated database for all time periods of a data item. Companies may be ranked into fractiles or ranked by their values (a simple ordinal rank). You may specify the variable (item) to be ranked, the number of fractiles and the ranking algorithm.

Ascending or descending order specifies whether the highest numerical value of the ranked item is ranked highest (ascending order) or lowest (descending order). For example, when ranking 100 companies by price in ascending order, companies with the lowest price are at the top of the order (1, 2, 3, 4) and companies with the highest price are at the bottom (97, 98, 99, 100).

Uniform rankings assign approximately equal numbers of companies to each fractile. Histograms create equal-length intervals based on high and low values within each time period. Histogram ranking shows the distribution of values for an active universe on a selected item.

Function	Usage	Results
AllOrdRank	AllOrdRankD(i7) Ord: Ordinal Ranking D: Descending order i7: Ranking item (price)	Orders all companies by the defined ranking item (i7)in the descending order. The highest value is given a rank of 1 and the lowest value is given a rank of n.
AllUnRank	AllUnRankA5(i7) Un: Uniform Ranking A: Ascending order 5: Number of fractiles i7: Ranking item (price)	First sorts all companies in ascending order. Then, puts equal number of companies in each of the 5 fractiles. Uniform rankings assign approximately equal numbers of companies to each fractile. However, a fractile loses companies to a previous fractile if it contains values identical to those in the previous fractile. This is to insure that companies with equal values for the ranked item are in the same fractile. Note that with Uniform rankings, the range between the high and low companies is not necessarily divided into equal intervals.
AllHstRank	AllHstRankA5(i7) Hst: Histogram Ranking A: Ascending order 5: Number of fractiles i7: Ranking item (price)	First creates 5 equal fractiles based on lowest and highest value of i7 (price). Companies are then dropped into the corresponding price fractile. Histogram rankings assign fractile ranks to equal-length segments between the high and low values of the ranked item. Fractiles do not have equal number of companies. Segments are reset each ranking period.
GrOrdRank	GrOrdRank23D(i7)	Creates ordinal ranking in

	Gr: Rank within group Ord: Ordinal Ranking 23: Group item (S&P500) D: Descending order i7: Ranking item (price)	descending order based on price (i7) within a group (i23).
GrUnRank	GrUnRank23D5(i7) Gr: Rank within a group Un: Uniform Ranking 23: Group item (S&P500) D: Descending order 5: Number of fractiles i7: Ranking item (price)	Creates uniform ranking (1 to 5) in descending order based on price (i7) within a group (i23).
GrHstRank	GrHstRank23D5(i7) Gr: Rank within a group Hst: Histogram Ranking 23: Group item (S&P500) D: Descending order 5: Number of fractiles i7: Ranking item (price)	Creates a histogram-based ranking (1-5) in descending order based on price (i7) within a group (i10).
Specific Group Ranks		
IndOrdRank	IndOrdRank(i7) Ind: x-industry (200+ industries)	Creates an ordinal ranking of companies using Zacks Expanded Industries.
SecOrdRank	SecOrdRank(i7) Sec:x-sector (17 sectors)	Creates an ordinal ranking of companies using Zacks Expanded Sectors.

Statistics/Regression

Function	Usage	Results
CSRegr	CSRegrLE(i8, i13) CSRegr: Function name for cross sectional regression. L: Linear (regression type) E: Standard error i8: dependent variable i13: independent variable	Creates standard error for the cross sectional regression. Other measures include: A-Alpha B-beta R-R^2 U-Residual N-Number in
CSMult	CSMultA(i8, i15, i16) CSMult: Function name for cross sectional multiple	Returns the alpha for the cross sectional multiple regression. Can also return Beta and T-Ratio for each independent variable.

	regression. A: Alpha (expected unexplained excess) i8: dependent variable i15, i16: independent variable	
TSStat	TSStatA2(i6) TSStat: Function category name A: Mean 2: Delta i6: dependent item	Return the average of i6 over 2 periods for each individual company. Other options include: S – sum H – high L – Low D – Standard Deviation M – Median N – Number N/A
TSRegr	TSRegrLA2(i6,i0) TSRegr: Function category name L: Linear (regression type) A: Alpha 2: Delta i6: dependent item i0: regression against time	Returns alpha for the regression of i6 against time, where time equals 2 periods. Other statistical measures to be returned: B – Beta R – R^2 E – Standard Error U – Residual N – Number in F – Fitted Value S – Standard error of fitted value

Miscellaneous Functions

Function	**Usage**	**Results**
FiscM	FiscM(i2) i2: Item that has FYE data, always i2 in Zacks databases.	Gives the number of months into a company's fiscal year. For example, for a company with FY end in January, March is fiscal month number 2.
FiscD	FiscD(i2) i2: Item that has FYE data, always i2 in Zacks databases.	Gives the number of days into a company's fiscal year. For example, for a company with FY in December, February 27 is day number 58 (31 days in Jan + 27 days in Feb).
%Chg#periods(ix)	%Chg4(i7)	This function calculates the percent change in price (i7) over four periods.
ChkNA	ChkNA(i7)	Returns a value of 0 if the data is N/A, 1 other wise.
NATo0	NATo0(i7)	Converts an N/A data point to a 0 value, otherwise returns value.
Transform	ix = transform (in, <filename>)	Converts an industry code to an industry name ("xindustry.grp") or a rating into a number (Analyst rating

		of B converts to 1) where x is the item you are transforming and <filename> is the text file where the transformed data will be saved.
ZDate	ZDate(i7)	Converts a float date of a specified item (i7 in example) to YYMMDD format.
CutDay	CutDay(i7)	Cuts out days – converts YYMMDD of i7 to YYMM.
AddCent	AddCent(i7)	Adds 2 digits to century – converts YYMMDD of i7 to YYYYMMDD/YYYYMM
ZDay	ZDay(i154)	Strips out day from alpha numeric date item with YYYYMMDD format or YYMMDD format. 20000508 will return 8 for ZDay.
ZMonth	ZMonth(i154)	Strips out month from alpha numeric date item with YYYYMMDD format or YYMMDD format. 20000508 will return 5 for ZMonth.
ZYear	ZYear(i154)	Strips out year from alpha numeric date item with YYYYMMDD format or YYMMDD format. 20000508 will return 2000 for ZYear.

Appendix G - Special Notes

Old "Excel Link" vs. New Zacks Link - Tech Notes

For those of you who have used the old Zacks Excel Link application, it is worth mentioning a few notes on the differences between the two programs. Excel Link was created using programming language within Excel's old 16-bit environment before Excel 97 was introduced. This effectively means that it will not work very well in Excel 97 or Excel 2000. Zacks Link however was created using Excel 97 and Excel 2000's 32-bit environment. It is speedier and more reliable than Excel Link. And Zacks Link will not work in versions of Excel 95 or before. Additionally, the old Excel Link used the standard DDE (Dynamic Data Exchange) protocol to tie database items to Excel spreadsheet cells. The new Zacks Link uses custom Windows DLLs (Dynamic Link Libraries) instead. This big difference allows more advanced Excel user's to manipulate Zacks Link formulas as it resembles more standard Excel formulas. This can be a powerful, more dynamic feature when you use cell references in formula parameters instead of hard-coded parameters.

Converting Existing Spreadsheets

It is worth mentioning that if you are a prior Zacks Link (Excel Link) user, there is a useful feature to convert old formula links to new ones. Please see the *Menu: Convert Prior Zacks Links* text in the "Zacks Link Functional Review" section for details on this utility. Be sure to change all existing spreadsheet file extensions from ".xlz" to ".xls".

User Interface Dialogue Box vs. Spreadsheet

The rule of thumb is that whenever an Excel menu item is selected and a dialogue box pops up, you must work with the dialogue box first before selecting spreadsheet cells. The exception is when there is a **Cell Reference** box in the dialogue box. The Excel program allows you to select a cell while the **Cell Reference** box is selected. In ZL, the edit dialogue boxes related to setting links to a database all have a **Cell Reference** or **Starting Cell Reference** box. If you select this box and then select a cell on the spreadsheet, the box gets updated with the exact location of that cell. See "Appendix C – The Cell Reference Box" for more information on this special box.

Internet Updates

Throughout this document, there are references to updating or refreshing Zacks Data via the Internet. You must realize that no web browser (e.g. Netscape Navigator or Microsoft Internet Explorer) is necessary except when using on-line help. The ZL application retrieves data as long as there is a live Internet connection (via network or modem).

#LinkError vs. #N/A

You must be aware of the difference between a cell link that has #LinkError versus one that has #N/A. #LinkError means that the value for the desired database item is completely and intentionally missing from the database. For example, if an invalid ticker is used, then #LinkError would result. The same would happen if the date of value were, say 4/1/2022, because the data is not yet inside the database file (.dbs). #N/A means that the data is NOT AVAILABLE. Here within the database, there is actually space in the item that contains the text: N/A. To contrast, #LinkError does not come from the database, as there is no space for that item at all.

Microsoft Excel Bugs

General Protection Fault (GPF) Error

Within a user interface Dialogue Box, there may be a gray "Browse" button to open up a text file or database file. After you select the file, the application is placed in a slightly vulnerable mode. At this point, the focus of the application is temporarily shifted to the spreadsheet instead of the Dialogue Box. Here, if you select a spreadsheet cell and does a "drag-and-drop" to another location, the GPF error occurs forcing you to exit Zacks Link and Excel without saving any changes.

Arrow Keyboard Keys Not Functional in Excel 2000

In Microsoft Excel 97, if the **Cell Reference** box (See "Appendix C – The Cell Reference Box") is selected, the arrow keys on the keyboard can be used to maneuver between cells. However, in Microsoft Excel 2000, due to a bug in the software relating to non-modal (a technical term) Dialogue Boxes, the arrow keys do not function while in the **Cell Reference** box. You must use the mouse pointer to select spreadsheet cells.

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